MONTHLY WEATHER REVIEW.

Editor: Prof. CLEVELAND ABBE.

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INTRODUCTION.

The MONTHLY WEATHER REVIEW for May, 1900, is based on reports from about 3,101 stations furnished by employees and voluntary observers, classified as follows: regular stations of the Weather Bureau, 158; West Indian service stations, 12; special river stations, 132; special rainfall stations, 48; voluntary observers of the Weather Bureau, 2,562; Army post hospital reports, 22; United States Life-Saving Service, 9; Southern Pacific Railway Company, 96; Canadian Meteorological Service, 32; Mexican Telegraph Service, 20; Mexican voluntary stations, 7; Mexican Telegraph Company, 3. International simultaneous observations are received from a few stations and used, together with trustworthy newspaper extracts and special reports.

Special acknowledgment is made of the hearty cooperation of Prof. R. F. Stupart, Director of the Meteorological Service of the Dominion of Canada; Mr. Curtis J. Lyons, Meteorologist to the Hawaiian Government Survey, Honolulu; Señor Manuel E. Pastrana, Director of the Central Meteorological and Magnetic Observatory of Mexico; Camilo A. Gonzales, Director-General of Mexican Telegraphs; Mr. Maxwell Hall, Government Meteorologist, Kingston, Jamaica; Capt. S. I. Kimball, Superintendent of the United States Life-Saving Service; and Commander Chapman C. Todd, Hydrographer, United States Navy.

The REVIEW is prepared under the general editorial supervision of Prof. Cleveland Abbe.

Attention is called to the fact that the clocks and self-registers at regular Weather Bureau stations are all set to seventy-fifth meridian or eastern standard time, which is exactly five hours behind Greenwich time; as far as practicable, only this standard of time is used in the text of the REVIEW, since all Weather Bureau observations are required to be taken and recorded by it. The standards used by the public in the United States and Canada and by the voluntary observers are believed to conform generally to the modern international system of standard meridians, one hour apart, beginning with Greenwich. The Hawaiian standard meridian is 157° 30′ or $10^h\ 30^m$ west of Greenwich. Records of miscellaneous phenomena that are reported occasionally in other standards of time by voluntary observers or newspaper correspondents are sometimes corrected to agree with the eastern standard; otherwise, the local standard is mentioned.

FORECASTS AND WARNINGS.

By Prof. E. B. GARRIOTT, in charge of Forecast Division.

The early part of the month was cool and dry from the upper Mississippi Valley over the Lake region, the Ohio Valley and the North Atlantic States; in the northern parts of the spring wheat district drought continued during the month. In Texas and California damage was caused by heavy rain. In the Middle Atlantic States rain on the 18th and 19th ended a drought that was becoming injurious to vegetation. These rains, and the period of warm weather which preceded them, were anticipated by the forecasts.

The severest gale of the month on the north Pacific coast occurred in the afternoon of the 23d. During this storm three fishermen were drowned and a number of fishing boats were lost at the mouth of the Columbia River. Timely warnings of the gale were issued by the Portland, Oreg., Weather Bureau Office the morning of the 23d.

From the 6th to the 9th an area of low barometer moved from Kansas to the New England coast, attended by severe local storms in Kansas and Nebraska on the 6th, and in areas from Texas to Indiana and Illinois on the 7th.

On the 3d general, and in many places, heavy frosts occurred in the western Lake region, and the Western and Northwestern States. On low ground in the fruit belt of Michigan, and also about Plainfield, Wis., strawberry buds were nipped by frost. On the 4th frost occurred in northern Tennessee, the Ohio Valley, and western and northern New York, with killing frost as far south as the Ohio River. Warnings of these frosts were issued the morning of the 3d. On the 5th ice formed at many points in northern Ohio, and the occurrence of frost was general from the Lake region eastward, except on the immediate Atlantic coast. During the night of the 9th frost damaged early garden vegetables in southern New England. On the 10th frost caused heavy damage to fruits and berries in Wisconsin and northern Indiana. Regarding the frosts in New York, the Country World, of Jamestown, N. Y., remarks, editorially, as follows:

> The value of the warnings sent out by the Weather Bureau were illustrated during the cold weather about the middle of May. Professor Moore, Chief of the Weather Bureau at Washington, telegraphed warnings to over 1,000 places in New York State, in addition to over 6,000 messages containing warnings mailed to different parts of the State for agricultural and other interests. In nearly every case these warnings were verified, and thousands of dollars saved to the people by timely preparation for the frosts.

CHICAGO FORECAST DISTRICT.

The month was marked by a continuation of the drought conditions over a portion of the Dakotas, Minnesota, and western Wisconsin, which form the northern part of the spring wheat district; but the few showers which afforded some relief were as a rule correctly forecast. The drought condition, and even the forecasts, under the circumstances

continually affected the price of wheat. On the other hand the greater portion of the spring wheat section was visited with frequent showers, especially in Kansas and in the middle Missouri Valley.

The most marked storm of the month developed in the Rocky Mountain region on the 5th and moved across the district on the 6th, 7th, and 8th, causing extensive, and sometimes severe, thunderstorms. Forecasts for thunderstorms were made well in advance of the movement of the storms.

In anticipation of the cool weather and frosts which overspread the greater portion of the district on the 3d, 4th, and 5th, warnings were widely issued beginning with the 2d. Frost warnings were also issued on the 9th for the frosts which occurred over the eastern portion of the district on the 10th.

On the morning of the 10th, in anticipation of a general change from low to high temperatures in the district, the following long range forecast was issued:

> The indications are for generally fair and warmer weather throughout the district, except in the northern Rocky Mountain region where showers are probable. The warm weather in the central valleys and upper Lake region should continue for several days.

This forecast was fully verified as the temperature continued to rise almost without interruption for three days, and the warm spell did not break in the eastern portion of the district until the 15th and 16th.

No storm moved across the upper Lake region during the month which was attended by winds sufficiently strong to seriously affect the movement of vessels.—*H. J. Cox, Professor.*

SAN FRANCISCO FORECAST DISTRICT.

The month opened with general rain over the San Joaquin and Sacramento valleys, extending across the Sierras into Nevada. Unusually heavy rains fell in southern California, beginning May 4. These rains were not forecast on the morning of May 3, as there was considerable doubt in the forecaster's mind that the pressure distribution warranted at this time of the year any forecast of rain. By the evening of the 3d, however, conditions were such that forecasts were made that the rain would continue. Such rain conditions are unprecedented, and therefore it is interesting to note that, although the exact beginning of the rain was not forecast, the continuation of it, when nearly everyone would have expected a cessation, was a decided justification of the methods employed in forecasting.

By May 5 the rain had been very heavy over the entire State of California. The value of this rain can hardly be overestimated, coming at the most opportune time for vegetation.

The second rain period of the month occurred on the 10th and 11th, and was successfully forecast. In southern California the precipitation was light, but in the San Joaquin Valley it was unusually heavy, some stations receiving nearly 2 inches from the storm. The rainfall at Fresno at this time exceeded that of any May for the past eighteen years. On May 11 warnings of high north winds, heavy showers, and much colder weather for Friday and Saturday were sent throughout eastern California, Nevada, and Utah. The warnings were verified at nearly all points. A rainfall of 1.16 inches was reported at Winnemucca on the morning of May 12.—*Alexander G. McAdie, Forecast Official.*

PORTLAND, OREG., FORECAST DISTRICT.

Two storms occurred in this district during the month; the first, on the afternoon of May 23, was the most severe, and a number of fishing boats at the mouth of the Columbia River were capsized and three fishermen drowned. Besides these casualties, considerable property, both on land and water, was damaged. The second storm occurred on the 25th, and was not so destructive. Timely warnings were issued for both storms, the first being covered by storm warnings and the second by an advisory message.

The spring rise this year in the Columbia River, due to the melting of snow in the mountains, was small, and daily river forecasts and bulletins were only necessary from May 9 to the 26th. The maximum height reached at Portland was 17.8 feet, and the river forecasts were of considerable value, as cellars and wharfs in the city are flooded when the river stands between 15 and 19 feet.—*E. A. Beals, Forecast Official.*

HAVANA FORECAST DISTRICT.

No general storms occurred and no special warnings were issued during the month.

On the 4th, 11th, and 31st notice of brisk to high north to east winds over the south Atlantic was sent to points on the coasts of Cuba, Haiti, Santo Domingo, and Puerto Rico.—*W. B. Stockman, Forecast Official.*

AREAS OF HIGH AND LOW PRESSURE.

During the month there were seven highs and nine lows sufficiently well defined to admit of being charted. (See Charts I and II.)

Highs.—Four of the highs were first observed in the British Northwest Territory, one on the northern Pacific coast, one in western Minnesota, and one to the north of Lake Superior. No. I was very well defined and altogether the most important high of the month. Appearing to the north of western Montana on the morning of the 1st, it moved slowly nearly due east, and on the morning of the 2d was central, with slightly increased pressure, north of the Dakotas. It entered the United States during the 2d, and for two days its course was nearly due south, the crest reaching the Louisiana coast on the evening of the 4th. On the morning of the 5th it was central at Jacksonville, Fla., and on the night of the 5th it passed into the Atlantic off the South Carolina coast. Its initial pressure (30.20) was maintained with very slight variations during its entire course. The temperature falls along its path were quite pronounced from the Canadian line to central Texas, freezing weather occurring in portions of North Dakota and Minnesota on the morning of the 2d, and frosts, ranging from light to killing, throughout the upper Mississippi Valley, and thence westward to central Colorado, on the morning of the 3d. A few light frosts were also reported from the Ohio Valley and Tennessee on the morning of the 4th. No. II appeared to the north of Lake Superior on the morning of the 6th, and moving southeastward, with increasing pressure, passed into the ocean off the New Jersey coast during the night of the 7th. Light to killing frosts marked its course through the lower Lake region, western New York, eastern Pennsylvania, and West Virginia.

No. III, which was first observed to the north of eastern Montana on the morning of the 8th, was attended throughout its course, from the Canadian line to the Carolina coast, with the highest pressure of the month. On the morning of the 10th its crest was central over the lower Ohio Valley, causing frosts northward to the Great Lakes and eastward to central Pennsylvania and western Maryland.

No. IV was of slight intensity and short duration. Appearing on the north Pacific coast on the morning of the 14th, it moved rapidly eastward and disappeared in the Rocky Mountains during the 15th.

Nos. V and VI appeared north of the Dakotas and passed off to the eastward without entering the United States.

No. VII appeared in the Red River of the North Valley during the 19th, pursued a southeasterly course to northern Kansas, and thence nearly due east to the North Carolina coast. It was of slight intensity and unimportant in its relation to temperatures.

Movements of centers of areas of high and low pressure.

Number.	First observed.			Last observed.			Path.		Average velocities.	
	Date.	Lat. N.	Long. W.	Date.	Lat. N.	Long W.	Length.	Duration.	Daily.	Hourly.
High areas.		°	°		°	°	*Miles.*	*Days.*	*Miles.*	*Miles.*
I	1, a. m.	51	114	5, p. m.	33	80	2,800	4.5	622	25.9
II	6, a. m.	48	89	7, p. m.	38	74	1,000	1.5	667	27.8
III	8, a. m.	51	104	11, a. m.	33	80	1,800	3.0	600	25.0
IV	14, a. m.	47	123	15, a. m.	43	109	800	1.0	800	33.3
V	15, a. m.	51	104	17, a. m.	45	67	1,750	2.0	875	36.5
VI	18, a. m.	50	100	19, a. m.	48	85	700	1.0	700	29.2
VII	19, p. m.	47	97	22, p. m.	35	76	1,750	3.0	583	24.3
Sums							10,600	16.0	4,847	202.0
Mean of 7 paths							1,514		692	28.9
Mean of 16 days									662	27.6
Low areas.										
I	1, a. m.	50	97	4, p. m.	49	64	2,000	3.5	571	23.8
II	1, p. m.	32	87	3, p. m.	43	70	1,300	2.0	650	27.1
III	5, a. m.	54	114	9, p. m.	46	60	3,775	4.5	839	35.0
IV	6, p. m.	53	106	8, a. m.	43	86	1,125	1.5	750	31.2
V	10, a. m.	48	117	11, a. m.	49	104	750	1.0	750	31.2
VI	11, p. m.	50	110	13, a. m.	50	100	875	1.5	583	24.3
VII	13, p. m.	51	104	15, p. m.	46	60	2,250	2.0	1,125	46.9
VIII	17, p. m.	32	106	21, a. m.	48	68	2,700	3.5	771	32.1
IX	22, a. m.	29	95	24, p. m.	35	76	1,250	2.5	500	20.8
Sums							16,025	22.0	6,539	272.4
Mean of 9 paths							1,781		727	30.3
Mean of 22 days									728	30.4

Lows.—No. I was first observed in the upper valley of the Red River of the North on the morning of the 1st. Its course was nearly due east to the St. Lawrence Valley, and, except a slight increase of temperature and showers in the lower Lake region, northern New York, and New England, it affected but slightly the weather conditions in the United States.

No. II apparently developed over southern Alabama on the 1st. It moved eastward to the Florida coast, and thence northward along the Atlantic coast, merging into No. I at or near Portland, Me., on the morning of the 3d. It was accompanied by thunderstorms and light rains in the east Gulf and South and Middle Atlantic States and high winds on the middle Atlantic coast.

No. III developed in the British Northwest Territory near the one hundred and fifteenth meridian during the night of the 4th, and, entering the United States through Montana, it moved southeastward, with remarkable rapidity, to southern Kansas, and thence slowly northeastward across the Great Lakes to the north Atlantic coast. Thunderstorms and rains, in many instances heavy, marked its course from Kansas to the New England coast.

Nos. IV and V were without any features of special interest, No. IV merging into No. III, and No. V disappearing in North Dakota within twenty-four hours after its development in western Washington.

No. VI was a marked depression, but of short duration, and very erratic movement. Its effects were confined to the far northwest, where general rains fell over a large area of territory, embracing Montana and Washington.

No. VII originated in the British Northwest Territory and moved almost due east along the Canadian boundary line to Nova Scotia.

No. VIII developed in the upper Rio Grande Valley on the 17th, and moving northeastward with slowly decreasing pressure, reached the middle Atlantic coast on the 19th. Its course was thence north to the St. Lawrence Valley. Rains generally light and scattered accompanied this depression through the west Gulf States, central valleys, and Middle and New England States.

No. IX, which was probably of Gulf origin, appeared in southern Texas on the morning of the 22d, accompanied by heavy rain at Galveston and light rains throughout the eastern and central portions of Texas. It moved slowly northeastward and passed into the Atlantic off the North Carolina coast on the 24th. It caused general and heavy rains on the 23d in the east Gulf and South Atlantic States, and heavy rains along the south Atlantic coast on the 24th.—*Geo. E. Hunt, Chief Clerk, Forecast Division.*

RIVERS AND FLOODS.

The floods of April continued in the lower sections of the Brazos and Tombigbee rivers until about the middle of the month; in the Brazos River the crest of the flood reaching the Gulf on the 17th. Many farms were overflowed below Waco, Tex., and a few of them were abandoned for the season. The water passed somewhat more rapidly out of the Tombigbee, and no damage to crops or loss of stock was reported after the 1st of May. On the first day of the month the water in this stream at Demopolis, Ala., stood 55.6 feet on the gage, which was 20 feet above the danger line, and on the 31st a gage reading of only 4.4 feet was recorded, giving the remarkable monthly range of 51.2 feet.

Although there was a gradual fall in the Mississippi River, a fairly good navigable stage of water continued throughout the month, except in the extreme upper section.

On the upper Ohio River the larger steamboats were tied up on account of low water from the 12th to the 30th, but resumed their trips on the 31st. No interruption to navigation was reported below Cincinnati.

The mean water stages in the Missouri, Arkansas, and Red rivers were slightly higher than those of the preceding month.

A detailed report of the Brazos River Valley flood, and freshets in other streams of Texas has been made by Dr. I. M. Cline, official in charge of the Weather Bureau office at Galveston, Tex., and is printed in another portion of this REVIEW.

The highest and lowest water, mean stage, and monthly range at 132 river stations are given in Table XI. Hydrographs for typical points on seven principal rivers are shown on Chart V. The stations selected for charting are: Keokuk, St. Louis, Memphis, Vicksburg, and New Orleans, on the Mississippi; Cincinnati and Cairo, on the Ohio; Nashville, on the Cumberland; Johnsonville on the Tennessee; Kansas City, on the Missouri; Little Rock, on the Arkansas; and Shreveport, on the Red.—*Geo. E. Hunt, Chief Clerk, Forecast Division.*

CLIMATE AND CROP SERVICE.

By JAMES BERRY, Chief of Climate and Crop Service Division.

The following extracts relating to the general weather conditions in the several States and Territories are taken from the monthly reports of the respective sections of the Climate and Crop Service. The name of the section director is given after each summary.

Rainfall is expressed in inches.

Alabama.—The mean temperature was 71.2°, or 0.3° below normal; the highest was 97°, at Ashville on the 15th, and the lowest, 38°, at Hamilton on the 4th. The average precipitation was 2.64, or 0.32 below normal; the greatest monthly amount, 10.14, occurred at Mobile, and the least, 0.07, at Opelika.—*P. P. Chaffee.*

Arizona.—The mean temperature was 72.7°, or 1.0° above normal; the highest was 112°, at Texas Hill on the 27th and 30th, and the lowest, 25°, at Flagstaff on the 1st. The average precipitation was 0.18, or 0.15 below normal; the greatest monthly amount, 1.50, occurred at Flagstaff, while none fell at a number of stations.—*W. G. Burns.*

Arkansas.—The mean temperature was 69.3°, or 0.7° below normal; the highest was 97°, at Newport on the 15th, and the lowest, 37°, at Pocahontas on the 4th. The average precipitation was 3.69, or 0.90 below normal; the greatest monthly amount, 6.06, occurred at Marianna, and the least, 1.92, at Malvern.—*E. B. Richards.*

California.—The mean temperature was 64.0°, or nearly normal; the highest was 114°, at Volcano Springs on the 30th, and the lowest, 10°, at Bodie on the 12th. The average precipitation was 1.39, or 0.15 above normal; the greatest monthly amount, 5.06, occurred at Crescent City, while none fell at several stations.—*Alexander G. McAdie.*

Colorado.—The mean temperature was 55.4°, or 2.0° above normal; the highest was 95°, at Delta on the 27th and 28th, and the lowest, 11°, at Breckenridge on the 1st and 3d. The average precipitation was 1.31, or 0.60 below normal; the greatest monthly amount, 4.00, occurred at Box Elder, and the least, trace, at Twin Lakes.—*F. H. Brandenburg.*

Florida.—The mean temperature was 75.5°, or slightly below normal; the highest was, 96°, at Carrabelle on the 17th, and the lowest, 47°, at Wausau on the 12th. The average precipitation was 3.83, or 1.13 above normal; the greatest monthly amount, 9.34, occurred at Key West, and the least, 0.55, at Stephensville.—*A. J. Mitchell.*

Georgia.—The mean temperature was 70.8°, or practically normal; the highest was 96°, at Waycross on the 25th, and the lowest, 32°, at Diamond on the 10th. The average precipitation was 2.46, or 0.82 below normal; the greatest monthly amount, 5.44, occurred at Elberton, and the least, 0.51, at Morgan.—*J. B. Marbury.*

Idaho.—The mean temperature was 55.2°, or 2.4° above normal; the highest was 100°, at Garnet on the 9th, and the lowest, 18°, at Marysville on the 29th. The average precipitation was 1.84, or nearly normal; the greatest monthly amount, 3.84, occurred at St. Maries, and the least, 0.04, at Downey.—*S. M. Blandford.*

Illinois.—The mean temperature was 64.7°, or 1.6° above normal; the highest was 93°, at New Burnside on the 15th and at Bloomington on the 27th, and the lowest, 24°, at Havana on the 4th. The average precipitation was 4.23, or nearly normal; the greatest monthly amount, 8.02, occurred at Shobonier, and the least, 1.33, at Havana.—*M. E. Blystone.*

Indiana.—The mean temperature was 64.8°, or 2.6° above normal; the highest was 96°, at Vincennes on the 17th, and the lowest, 20°, at Prairie Creek on the 10th. The average precipitation was 4.96, or 0.75 above normal; the greatest monthly amount, 7.29, occurred at Worthington, and the least, 1.74, at South Bend.—*C. F. R. Wappenhans.*

Iowa.—The mean temperature was 63.2°, or 2.5° above normal; the highest was 98°, at Toledo on the 23d, and the lowest, 22°, at Sibley on the 3d. The average precipitation was 3.31, or 0.66 below normal; the greatest monthly amount, 6.98, occurred at Maquoketa, and the least, 0.96, at Le Mars.—*J. R. Sage, Director; G. M. Chappel, Assistant.*

Kansas.—The mean temperature was 65.5°, or 1.1° above normal; the highest was 95°, at Ulysses on the 31st, and the lowest, 29°, at Achilles on the 20th. The average precipitation was 3.39, or about 0.60 below normal; the greatest monthly amount, 6.67, occurred at Sedan, and the least, 0.20, at Colby—*T. B. Jennings.*

Kentucky.—The mean temperature was 66.3°, or 0.5° above normal; the highest was 96°, at Maysville on the 17th, and the lowest, 29°, at Jamestownon the 4th. The average precipitation was 3.49 or 0.64 below normal; the greatest monthly amount, 6.19, occurred at Earlington, and the least, 1.13, at Marrowbone.—*H. B. Hersey.*

Louisiana.—The mean temperature was 73.9°, or about normal; the highest was 96°, at Southern University Farm on the 26th, and the lowest, 43°, at Plain Dealing on the 4th. The average precipitation was 4.52, or 1.25 above normal; the greatest monthly amount, 9.28, occurred at Shell Beach, and the least, 0.55, at Melville.—*W. T. Blythe.*

Maryland and Delaware.—The mean temperature was 63.2°, or 0.2° above normal; the highest was 103°, at Wyoming, Del., on the 15th, and the lowest, 20°, at Deer Park, Md., on the 4th and 5th. The average precipitation was 2.46, or 1.67 below normal; the greatest monthly amount, 4.93, occurred at Millsboro, Del., and the least, 1.00, at Baltimore, Md.—*E. C. Easton.*

Michigan.—The mean temperature was 56.4°, or 2.0° above normal; the highest was 95°, at Owosso on the 15th, and the lowest, 10°, at Omer on the 4th. The average precipitation was 2.68, or 0.52 below normal; the greatest monthly amount, 9.80, occurred at Olivet, and the least, 0.17, at Northport.—*C. F. Schneider.*

Minnesota.—The mean temperature was 59.9°, or about 3.5° above normal; the highest was 98°, at Hallock on the 12th, and the lowest, 11°, at Tower on the 3d. The average precipitation was 0.90, or about 2.00 below normal; the greatest monthly amount, 3.52, occurred at Albert Lea, while none fell at Milaca.—*T. S. Outram.*

Mississippi.—The mean temperature was 72.2°, or about 3.5° below normal; the highest was 96°, at Windham on the 16th and 27th, and the lowest, 39°, at Ripley on the 10th and 11th. The average precipitation was 3.70, or 1.49 above normal; the greatest monthly amount, 6.77, occurred at Biloxi, and the least, 0.90, at Lake.—*H. E. Wilkinson.*

Missouri.—The mean temperature was 66.2°, or 1.5° above normal; the highest was 97°, at Unionville on the 27th, and the lowest, 29°, at Potosi on the 10th. The average precipitation was 3.72, or 1.85 below normal; the greatest monthly amount, 7.61, occurred at Downing, and the least, 1.01, at Warrensburg. Over many of the central and western counties the precipitation was remarkably light. At Warrensburg, where the observations cover a period of 22 years, it was the driest May on record, and at Sedalia it was the driest since 1879.—*A. E. Hackett.*

Montana.—The mean temperature was 58.1°, or 3.2° above normal; the highest was 102°, at Ridgelawn on the 27th, and the lowest, 24°, at Glasgow on the 2d and Adel on the 27th. The average precipitation was 2.34, or 0.25 above normal; the greatest monthly amount, 7.54, occurred at Dupuyer, and the least, 0.05, at Dell.—*E. J. Glass.*

Nebraska.—The mean temperature was 63.8°, or 4.3° above normal; the highest was 102°, at Holdredge and Nemaha on the 30th, and the lowest, 26°, at Lynch on the 3d. The average precipitation was 2.32, or 1.24 below normal; the greatest monthly amount, 8.00, occurred at Tablerock, and the least, 0.27, at Curtis.—*G. A. Loveland.*

Nevada.—The mean temperature was 56.6°, or about 2.0° above normal; the highest was 101°, at Las Vegas on the 30th, and the lowest, 20°, at Fenelon on the 13th. The average precipitation was 0.77, or about 0.38 below normal; the greatest monthly amount, 2.25, occurred at Palmetto, while none fell at Las Vegas.—*J. H. Smith.*

New England.—The mean temperature was 53.1°, or 2.2° below normal; the highest was 96°, at Norwalk, Conn., on the 15th, and the lowest, 15°, at Grafton, N. H., on the 11th. The average precipitation was 4.04, or 0.24 above normal; the greatest monthly amount, 8.24, occurred at Orono, Me., and the least, 1.30, at Cornwall, Vt.—*J. W. Smith.*

New Jersey.—The mean temperature was 60.9°, or 0.3° above normal; the highest was 98°, at Boonton and Paterson on the 15th, and the lowest, 26°, at Charlotteburg on the 6th and at Roseland on the 10th. The average precipitation was 4.71, or 0.21 above normal; the greatest monthly amount, 7.33, occurred at Rocktown, and the least, 2.53, at Bridgeton.—*E. W. McGann.*

New Mexico.—The mean temperature was 62.1°, or 0.4° above normal; the highest was 98°, at Lyons' Ranch and Messilla Park on the 30th, and the lowest, 25°, at Winsors on the 3d. The average precipitation was 1.29, or 0.56 above normal; the greatest monthly amount, 5.75, occurred at Fort Union, while at Gage, Lordsburg, Rincon, and Strauss none was recorded, and only a trace at Engle, Lyons' Ranch, and Olio.—*R. M. Hardinge.*

New York.—The mean temperature was 55.8°, or 0.4° above normal; the highest was 95°, at Cedar Hill on the 14th, and at Catskill and North Germantown on the 15th, and the lowest, 17°, at Windham on the 11th. The average precipitation was 2.35, or 1.76 below normal; the greatest monthly amount, 6.51, occurred at Carmel, and the least, 0.53, at Binghamton.—*R. G. Allen.*

North Carolina.—The mean temperature was 67.0°, or normal; the highest was 98°, at Southern Pines on the 14th, and the lowest, 31°, at Linville on the 11th. The average precipitation was 2.70, or 1.48 below normal; the greatest monthly amount, 5.71, occurred at Soapstone Mount, and the least, 0.92, at Monroe.—*C. F. von Herrmann.*

North Dakota.—The mean temperature was 59.2°, or 7.9° above normal; the highest was 106°, at Dickinson on the 27th, and the lowest, 15°, at Bottineau on the 2d. The average precipitation was 0.69, or 1.73 below normal; the greatest monthly amount, 2.27, occurred at Towner, and the least, 0.05, at Woodbridge.—*B. H. Bronson.*

Ohio.—The mean temperature was 62.9°, or 1.9 above normal; the highest was 97°, at New Waterford on the 15th, and the lowest, 20°, at

Orangeville on the 10th. The average precipitation was 2.40, or 1.07 below normal; the greatest monthly amount, 6.39, occurred at Camp Dennison, and the least, 0.84, at Canal Dover.—*J. Warren Smith.*

Oklahoma and Indian Territories.—The mean temperature was 68.1°, or 1.8 below normal; the highest was 97°, at Waukomis on the 31st, and the lowest, 39°, at Osage on the 3d. The average precipitation was 4.59, or 0.55 below normal; the greatest monthly amount, 8.92, occurred at Osage, and the least, 0.80, at Beaver.—*C. M. Strong.*

Oregon.—The mean temperature was 56.5°, or 0.7° above normal; the highest was 94°, at Pendleton on the 3d, and the lowest, 21°, at Riverside on the 11th. The average precipitation was 3.02, or 0.20 above normal; the greatest monthly amount, 9.13°, occurred at Glenora, and the least, 0.03, at The Dalles.—*E. A. Beals.*

Pennsylvania.—The mean temperature was 64.0°, or 0.7° above normal; the highest was 96°, at Derry Station and Irwin on the 17th, and the lowest, 20°, at Smethport on the 4th. The average precipitation was 2.79, or 1.96 below normal; the greatest monthly amount, 7.63, occurred at Forks of Neshaminy, and the least, 0.72, at Selins Grove.—*L. M. Dey.*

South Carolina.—The mean temperature was 70.2°, or 1.5 below normal; the highest was 96°, at Liberty on the 13th and at Yorkville on the 14th, and the lowest, 38°, at Walhalla on the 10th and at Trial on the 11th. The average precipitation was 2.37, or 0.91 below normal; the greatest monthly amount, 4.99, occurred at Yorkville, and the least, 1.17, at Society Hill.—*J. W. Bauer.*

South Dakota.—The mean temperature was 62.6°, or about 6.0° above normal; the highest was 101°, at Forest City on the 11th, and the lowest, 19°, at Watertown on the 3d. The average precipitation was 1.10, or about 2.14 below normal; the greatest monthly amount, 2.90, occurred at Greenwood, and the least, 0.01, at Shilo.—*S. W. Glenn.*

Tennessee.—The mean temperature was 67.1°, or about normal; the highest was 97°, at McKenzie on the 16th, and the lowest, 29°, at Erasmus on the 4th. The average precipitation was 2.57, or 1.11 below normal; the greatest monthly amount, 7.25, occurred at Savannah, and the least, 0.75, at Union City.—*H. C. Bate.*

Texas.—The mean temperature, determined by comparison of 47 stations distributed throughout the State, was 1.2° below normal. There was a slight excess along the immediate east coast and in a few scattered localities, while there was a general deficiency elsewhere, ranging from 1.0° to 3.3° over the northwestern half of the State. The highest was 105°, at Fort Ringgold on the 19th, and the lowest, 40°, at Tyler on the 16th. The average precipitation, determined by comparison of 53 stations distributed throughout the State, was 1.70 above normal. Nearly normal conditions prevailed along the eastern and western portions of the coast and the extreme western portion of west Texas. There was a deficiency in localities over the eastern portion of north Texas; over the other portions of the State there was a general excess ranging from 1.00 to 9.80, with the greatest in the vicinity of Fort Clark. The rainfall was generally heavy over central and southwest Texas. The greatest monthly amount, 12.50, occurred at Fort Clark, and the least, 0.10, at Point Isabel.—*I. M. Cline.*

Utah.—The mean temperature was 59.4°, or 2.5° above normal; the highest was 101°, at Elgin on the 25th, and the lowest, 21°, at Tropic on the 12th. The average precipitation was 0.36, or 0.84 below normal; the greatest monthly amount, 1.52, occurred at Millville, while none fell at Kelton, Cisco, and Elgin.—*L. H. Murdoch.*

Virginia.—The mean temperature was 64.7°, or nearly normal; the highest was 100°, at Columbia on the 14th, and the lowest, 25°, at Meadowdale on the 4th and at Columbia on the 10th. The average precipitation was 2.79, or 1.20 below normal; the greatest monthly amount, 4.52, occurred at Fontella, and the least, 1.12, at Standardsville.—*E. A. Evans.*

Washington.—The mean temperature was 56.2°, or 1.2° above normal; the highest was 93°, at Pasco on the 3d, and the lowest, 25°, at Wilbur on the 21st. The average precipitation was 3 33, or 0.69 above normal; the greatest monthly amount, 13.62, occurred at Monte Cristo, and the least, 0.10, at Sprague.—*G. N. Salisbury.*

West Virginia.—The mean temperature was 62.5°, or nearly normal; the highest was 98°, at Point Pleasant on the 18th, and the lowest, 21°, at Grafton on the 10th. The average precipitation was 2.99, or 1.02 below normal; the greatest monthly amount, 6.75, occurred at Princeton, and the least, 0.35, at Martinsburg.—*E. C. Vose*

Wisconsin.—The mean temperature was 59.0°, or 2.8° above normal; the highest was 92°, at Grantsburg on the 11th, at Eau Claire and Osceola on the 12th, and at Prairie du Chien on the 14th, and the lowest, 16°, at Butternut, Hayward, Medford, and Osceola on the 4th. The average precipitation was 1.58, or 2.16 below normal; the greatest monthly amount, 3.77, occurred at Dodgeville, and the least, 0.32, at Hayward.—*W. M. Wilson.*

Wyoming.—The mean temperature was 55.3°, or 4.2° above normal; the highest was 97°, at Lovell on the 10th, and the lowest, 16°, at Centennial on the 1st. The average precipitation was 0.59, or 1.29 below normal; the greatest monthly amount, 2.42, occurred at Fort Yellowstone, and the least, trace, at several stations.—*W. S. Palmer.*

SPECIAL CONTRIBUTIONS.

RECENT PAPERS BEARING ON METEOROLOGY.

W. F. R. PHILLIPS, in charge of Library, etc.

The subjoined list of titles has been selected from the contents of the periodicals and serials recently received in the library of the Weather Bureau. The titles selected are of papers or other communications bearing on meteorology or cognate branches of science. This is not a complete index of the meteorological contents of all the journals from which it has been compiled; it shows only the articles that appear to the compiler likely to be of particular interest in connection with the work of the Weather Bureau:

Symons's Monthly Meteorological Magaztne. London. Vol. 35.
—— Meteorological Extremes. III. Wind Force. P. 49 and 65.
—— Indian Famine causing Droughts and their Prevision. P. 66.

American Journal of Science. New Haven 4th series. Vol. 9.
Barus C. On a Method of Studying the Diffusion (Transpiration) of Air through Water, and on a Method of Barometry. P. 397.

Naturwissenschaftliche Rundschau. Braunschweig. 15 *Jahrg.*
Schwalbe, G., J. Elster, und H. Geitel. Ueber die Existenz electrischer Ionen in der Atmosphäre. Beitrage zur Kenntniss der Atmosphärischen Elektricität. P. 252.

McClures' Magazine. New York. Vol. 15.
Chanute, O. Experiments in Flying. P. 127.

Ciel et Terre. Bruxelles. 21*me Année.*
Arctowski, H. Observations sur l'aurore australe faites pendant l'hivernage de l'Expédition Antarctique Belge. P. 127.
Linden, E. V. Organismes et variations atmosphériques. P. 131.
Arctowski, H. Quelques résultats des observations météorologiques faites à Punta-Arenas (Amérique du Sud) par le Rév. P. Marabini.

Scientific American. New York. Vol. 82.
—— Atmospheric Resistance to Railroad Trains. P. 354 and 356.

Das Wetter. Berlin. 17 *Jahrg.*
Kassner, C. Das meteorologische Observatorium auf der Schneekoppe. P. 97.

Philosophical Magazine. London. Vol. 49.
Wilson, H. B. Variation of Electric Intensity and Conductivity along the Electric Discharge in Rarefied Gases. P. 505.

Gaea. Leipzig. 36 *Jahrg.*
Klein, H. J. Die neuern Forschungen über die Warmestrahlung und Temperatur der Sonne und deren Bedeutung. P. 391.
—— Das atmosphärische Gas Krypton. P. 395.

Petermann's Mitteilungen. Gotha. 46 *Band.*
Hergesell, H. Die Temperatur der freien Atmosphäre. P. 97.

Journal of School Geography. Lancaster. Vol. 4.
Herbertson, A. J. Climate of South Africa. P. 208.

Nature. London. Vol. 62.
Wilson, C. T. R. Atmospheric Electricity. P. 149.

Science. New York. N. S. Vol. 11.
Langley, S. P. Preliminary Account of the Solar Eclipse, May 28, 1900, as observed by the Smithsonian Expedition. P. 974.

Memorias y Revista de la Sociedad Científica "Antonio Alzarte." Mexico. Tomo 14.
Leal, M. Résumés mensuales des observations faites à Léon pendant 20 annèes, 1878–1897. P. 264.
Moreno, M. La variation diurne de la déclinaison magnétique à Tacubaya en rélation avec la période des taches solaires. P. 191.

Meteorologische Zeitschrift. Wien. Band 17.
Woeikof, A. Klima von Luktschun, Centralasien. P. 193.
Woeikof, A. Der Luftdruck und die atmosphärische Cirkulation in Asien. P. 202.
Woeikof, A. Wo ist der höchste Luftdruck der Erde, mit und ohne Reduktion auf das Meeresniveau? P. 207.
Kremser, V. Beiträge zur Frage der Kälterückfälle im Mai. P. 209.
Kassner, C. Ergebnisse von Beobachtungen über Wogenwolken. P. 216.
Supan, —. Die erste meteorologische Jahresreihe aus dem Südpolargebiete. P. 220.
Hann, J. Mittlere Regenmenge zu San Fernando 1851–1895. P. 223.
Okada, T. Der tägliche Gang der Bewölkung in Tokio. P. 224.
Kassner, C. Eine neue Schneekrystallform. P. 225.

— Regenmessungen in Deutsch-Südwestafrika. P. 226.
Baschin, O. Unsichtbare Luftwogen. P. 231.
— Meteorologische Beobachtungen in Fort Simpson. P. 232.
— Die relative Feuchtigkeit unserer Wohnungen im Winter. P. 233.
— Wolkenbeobachtungen am Blue Hill-Observatorium 1897–98. P. 233.
— Eine bemerkenswerthe Ballonfahrt. P. 234.
— Einfluss der Bewaldung auf Hagelgefahr. P. 234.
Wolfer, A. Provisorische Sonnenflecken-Relativzahlen für das I. Quartal 1900. P. 235.
Elster J., und Geitel H. Beiträge zur Kenntniss der atmosphärischen Elektricität. P. 226.

MEXICAN CLIMATOLOGICAL DATA.

Through the kind cooperation of Señor Manuel E. Pastrana, Director of the Central Meteorologic-Magnetic Observatory, the monthly summaries of Mexican data are now communicated in manuscript, in advance of their publication in the Boletin Mensual. An abstract, translated into English measures, is here given, in continuation of the similar tables published in the MONTHLY WEATHER REVIEW since 1896. The barometric means have not been reduced to standard gravity, but this correction will be given at some future date when the pressures are published on our Chart IV.

Mexican data for May, 1900.

Stations.	Altitude.	Mean barometer.	Temperature.			Relative humidity.	Precipitation.	Prevailing direction.	
			Max.	Min.	Mean.			Wind.	Cloud.
	Feet.	*Inch.*	°*F.*	°*F.*	°*F.*	%	*Inch.*		
Culiacán Rosales (Sinaloa)	112	29.70	99.5	65.5	81.5	44	.....	w.	e.
Leon (Guanajuato)	5,934	24.27	91.6	46.6	71.8	31	0.31	se., nw.	ne.
Mexico (Obs. Cent.)	7,472	23.05	85.6	49.1	65.3	49	1.56	n.	ne., nw.
Morelia (Seminario)	6,401	23.97	87.6	48.4	67.8	49	0.33	w.	w.
Puebla (Col. Cat.)	7,112	23.36	85.3	47.8	68.7	54	1.48	ene.	ne.
Saltillo (Col. S. Juan)	5,209	24.75	89.2	53.6	71.1	59	0.26	nne.	sw.
San Isidro (Hac. de Guanajuato)	.....	.....	81.5	64.4	.....	.....	1.26	w.	.....
San José del Cavo (B. C.)	.....	.....	87.8	70.7	78.4	.....	.....	s.	e.
Silao	6,063	24.24	87.3	55.8	72.3	52	0.51	se.	w.
Zapotlan (Seminario)	5,078	25.08	92.1	47.8	72.9	41	0.30	sse.	w.

SPECIAL REPORT ON THE FLOODS IN THE BRAZOS RIVER VALLEY, TEX., APRIL 27 TO MAY 17, 1900; ALSO FRESHETS IN OTHER STREAMS.

By I. M. CLINE, Local Forecast Official and Section Director.

The growing season of 1900, to date, appears to have been the most unfavorable to the extensive agricultural interests throughout the lower Brazos River Valley for nearly fifty years. The precipitation in the Brazos drainage basin has been excessive at most stations in all months this year. The months of April and May were characterized by two overflows of the Brazos River which were the most extensive and destructive in places that have occurred in nearly fifty years, with the exception of the unprecedented flood of July, 1899.

It was noted in the report on floods in the Colorado River Valley during April, 1900, published in the MONTHLY WEATHER REVIEW for that month, that heavy rains fell throughout the upper portion of the Brazos drainage basin, April 5, 6, and 7. The run off from these rains filled the upper portion of the Brazos River nearly bank full. This volume of water moved southward and reached the central and lower portions of the Brazos during the third decade in April. Floods from the upper portion of the Brazos seldom overflow the banks of the river south of McLennan County, unless heavy rains occur over the central and southern portions of the Brazos Valley simultaneously with the advent of the waters from the upper portion of the river in these sections. Heavy rains throughout Texas, April 22, filled nearly all small streams. Showery weather, with heavy rains in some localities, from April 23 to 26, inclusive, maintained streams nearly bank full. These conditions were followed by excessive rains, April 27 and 28, throughout the Brazos drainage basin which caused unprecedented floods along some of the tributaries of the Brazos in the central portion of the State, and also resulted in an extensive overflow of the Brazos River which commenced south of Waco, April 28, and passed into the Gulf of Mexico May 17, 1900.

The following stations report 3 inches or more of precipitation during the forty-eight hours ending 8 a. m., April 28, 1900; Alvin, 5.08; Anna, 4.20; Beaumont, 3.00; Coleman, 3.00; Forestburg, 3.90; Gainesville, 3.83; Hewitt, 6.05; Houston, 3.40; Hulen, 3.70; Saginaw, 3.05; Sugarland, 3.10; Temple, 5.95; Waco, 4.40; and Wichita Falls, 3.33.

The rainfall in Texas from April 22 to 30, inclusive, is given in the following table:

Station.	Rainfall.	Station.	Rainfall.	Station.	Rainfall.
	Ins.		*Ins.*		*Ins.*
Abilene	2.80	Emory	2.36	Longview	5.05
Alpine	0.12	Estelle	2.29	Luling	5.37
Alvin	6.00	Fort Clark	2.00	Mann	4.77
Alice	T.	Fort McIntosh	2.35	Menardville	0.00
Amarillo	1.49	Fort Ringgold	2.03	Mount Blanco	0.03
Anna	4.95	Fort Stockton	0.00	Nacogdoches	4.38
Anson	1.75	Fort Worth	3.23	New Braunfels	6.42
Arthur City	1.03	Forestburg	4.40	Palestine	4.21
Austin	2.52	Gainesville	5.73	Panter	3.12
Ballinger	4.60	Galveston	3.32	Paris	0.48
Beaumont	4.00	Georgetown	4.45	Point Isabel	0.50
Beeville	0.87	Grapevine	3.50	Rhineland	2.89
Big Springs	2.16	Greenville	3.18	Rockisland	3.84
Blanco	2.10	Hale Center	1.39	Runge	3.81
Boerne	5.82	Hallettsville	1.97	Sabine	2.70
Bowie	4.43	Haskell	3.70	Saginaw	5.25
Brazoria	2.76	Hearne	4.40	San Antonio	4.72
Brenham	4.30	Henrietta	2.98	San Marcos	4.70
Brighton	1.16	Hewitt	9.80	Santa G. Ranch	0.92
Brownwood	3.75	Hondo	2.85	Sugarland	4.81
Burnet	2.99	Houston	4.32	Sulphur Springs	1.41
Camp Eagle Pass	3.70	Hulen	7.25	Temple *a*	8.01
Coleman	4.51	Huntsville	4.05	Temple *b*	7.94
Colorado	3.21	Ira	1.33	Texarkana	4 24
Columbia	3.73	Jacksonville	5.10	Tulia	1.10
Corpus Christi	0.19	Jasper	3.95	Turnersville	2.60
Corsicana	3.46	Junction	4.20	Tyler	3.10
Cuero	4.25	Kent	0.16	Victoria	1.65
Dallas	2.40	Kerrville	3.33	Weatherford	3.04
Danevang	4.79	Lampasas	3.57	Waco	6.10
Dublin	1.53	Langtry	3.34	Waxahachie	2.45
Duval	3.97	Llano	2.83	Wichita Falls	3.75
El Paso	T.				

The geographical distribution of the rainfall which caused the floods in the Brazos Valley, April 27 to May 17, 1900, is shown on fig. 1, which has been drawn to represent the rainfall as given in the accompanying table. The rainfall in Texas from May 1 to 13, inclusive, was very light, so that the extent of the flood was not increased by rains during its progress southward. Heavy rains fell over the State May 14 and 15, but the crest of the flood was so far south that these did not affect the stage of the river in the locality of the overflow.

The distribution of pressure coincident with the rains from April 22 to 30, 1900, inclusive, may be summed up as follows: On April 22 the barometer was low throughout the Rocky Mountain region and west Gulf States, with the center of the disturbance over Colorado and Wyoming; an area of high pressure covered the eastern portion of the country. The low pressure area continued over the eastern Rocky Mountain slope and Texas during April 23, 24, 25, and 26, with slight changes in intensity and position of its center. During this time the crest of high pressure remained over the Lake region. From 8 a. m., April 26, to 8 a. m., April 27, the area of high pressure extended southward and covered the country east of the Mississippi River from the east Gulf coast to the Lake region; the barometer fell about one-tenth of an inch

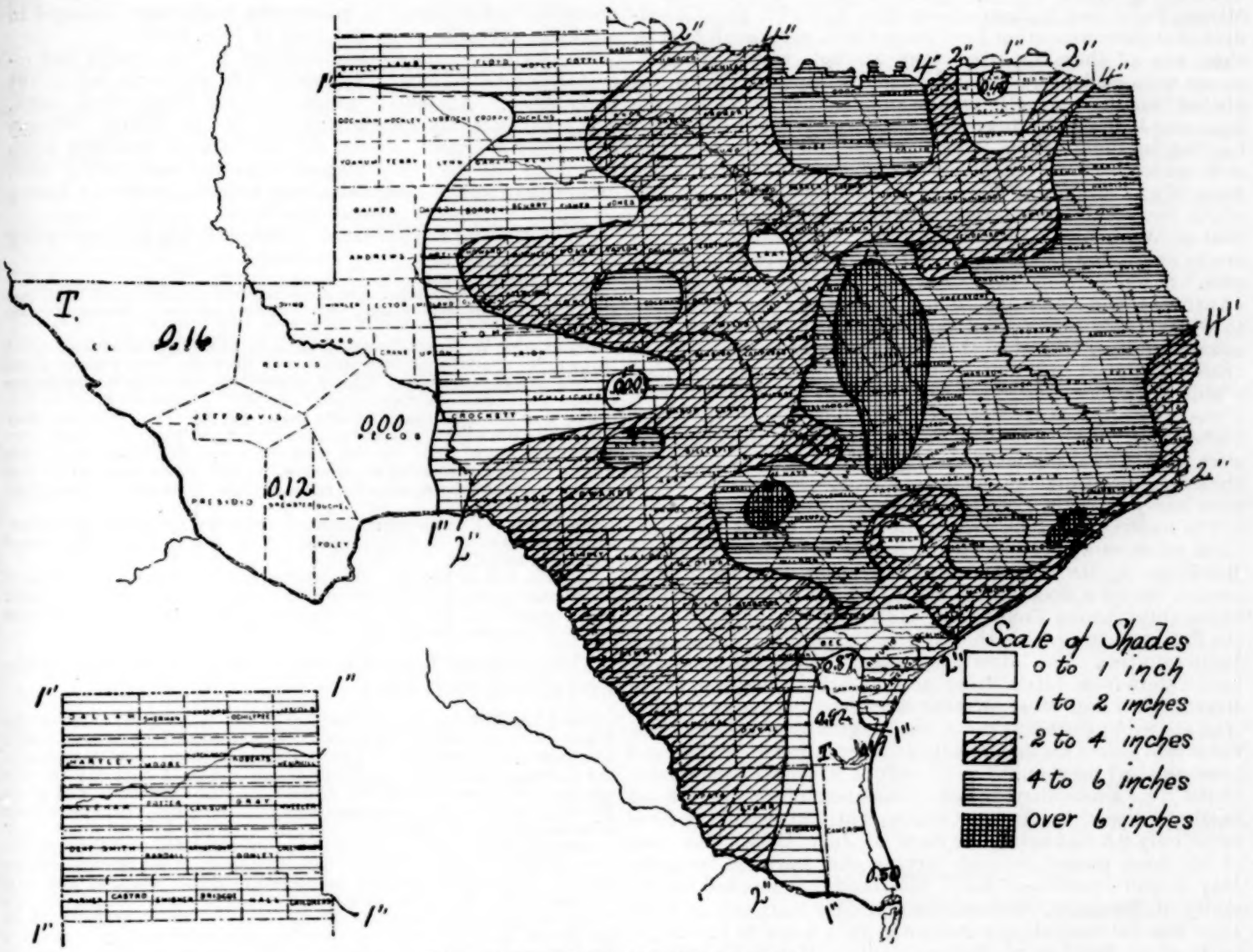


FIG. 1.—Geographical distribution of rainfall.

throughout Texas, with the center of storm development over the western portion of the State. From 8 a. m., April 27, to 8 a. m., April 28, the barometer had risen generally throughout the country; the storm center had moved to southeastern Texas and showed about the same relative intensity as that shown on the preceding date. A well-defined high pressure area was moving southward over the Rocky Mountain region. The low pressure area continued over southeastern Texas causing showers during April 29 and 30, but by May 1 it had moved eastward and the high barometer from the Northwest covered Texas, accompanied by clear and cool weather. The heavy rains of April 27 and 28 traversed the State from the northwest to the southeast. Over the central portion of the Brazos drainage basin the heavy rains occurred both on April 27 and 28, while in the northwest portion of the State they occurred only on the 27th, and in the southeast portion on the 28th.

The conditions shown on the weather charts of April 27 and 28 are such as generally give precipitation over Texas. However, we meet with the same difficulties which have confronted us on the occasion of previous floods in Texas, in seeking for an explanation of the causes of the heavy rains at Temple, Hewitt, and Waco, and at places in that section where the rainfall was evidently much greater than at the stations where measurements were made. The distribution of pressure on April 27 was of the same type as that which existed at the time of the occurrence of the heavy rains of April 7 and 8, 1900. The gradients on April 27, were, however, less steep, and the center of low pressure was farther to the eastward. The heavy rains in the former case occurred generally at elevations above 500 feet, while in the present case the territory which they covered was generally below 500 feet elevation. The heaviest rains were near the 500-foot contour line, and where there is a steep gradient to the westward the increase in elevation being about 1,000 feet between the ninety-seventh and ninety-ninth meridians in the vicinity of the thirty-first and thirty-second parallels of latitude.

Freshets were general throughout the central portion of the drainage basin of the Brazos River prior to the heavy rains of April 27 and 28 as a result of previous rains. With these conditions existing, the excessive rains of April 27 and 28 made it apparent that serious overflows were likely to occur along the Brazos River, and the following warning was issued, April 28, 1900, and distributed as widely as possible by telegraph and mail.

Excessive rains throughout Brazos drainage basin will probably cause decided rise in Brazos River, overflowing much low land from McLennan County south to the Gulf during next ten days. Please warn residents along river.

Local floods along tributaries to the Brazos River in Bell,

Milam, Falls, and McLennan counties, April 27, made it evident that there were other local rains which were much heavier than any of those reported from stations where measurements were made. On the afternoon of April 27 Waco was visited by a phenomenally sudden and destructive flood. More than one-half of the town was entirely covered with water, ranging in depth from 2 feet in the moderately elevated sections to 5 or 6 feet in the lower districts. This flood came from Waco creek and Barrows branch, two small streams which have their sources on a plateau to the west or southwest of Waco in McLennan County. The floods from these creeks swept down suddenly with a 15-foot rise in fifteen minutes. Seven persons were drowned in Waco on this date (April 27), and the value of buildings destroyed amounted to $15,000. It is reported that this flood has never been equaled in that locality; there was one very much like it in 1885. The flood in the present instance came and subsided within about one hour. In Falls County the streams were higher than for twenty-five years. In Bell County they were higher than they had been in forty-seven years; many bridges were washed away and other damage done. In Milam County the streams were higher than in July, 1899. The losses of stock were heavy in Falls, Bell, and Milam counties.

The waters from Bell, Milam, Robertson, Brazos, and Burleson counties which entered the Brazos River through Little River, the Little Brazos River, and other streams in that section caused a flood in the main Brazos in the vicinity of Stone City, Brazos County, on April 28. Behind this came the flood resulting from the rains in Coryell, McLennan, and Falls counties. The latter flood, augmented by the more distant waters from Little River and its tributaries, the Little Brazos River and other streams carrying waters from the district visited by the heavy rains, was the greater of the two. The two floods moved southward with an interval of two to five days between their crests until within about 50 miles of the mouth of the river where they united. The crest of the main flood reached Stone City, Brazos County, April 30, when the river stood only 2.5 feet below the flood of July, 1899. The crest of the flood passed through Brazos and Burleson counties May 1, and overflowed much low land. It reached the vicinity of Navasota, Grimes County, May 3. On May 4 the river was out over all low lands and still rising in the neighborhood of Brookshire, Waller County. May 5, all bottoms in the vicinity of Wallis, Austin County, were overflowed to a depth ranging from 3 to 15 feet. Most of the bottom farms in the vicinity of San Felipe, Austin County, were reported under water May 5, with the river rising at the rate of 1 inch per hour. On the same date reports from Richmond, Fort Bend County, stated that the river was higher than in many years, with the exception of July, 1899. May 6, a number of farms in Fort Bend County were overflowed, and levees were being constructed as far as practicable. The rise continued in Fort Bend County, and on May 7 broke over the levees in places. A portion of the cemetery at Richmond was submerged. On May 8 the river commenced falling at Richmond. The crest of the first flood reached Columbia, Brazoria County, about May 9, but the river had not commenced falling when the rise due to the second flood reached that place May 10. At all points north of Columbia there was a fall in the river between the crests of the two floods. The crest of the flood reached Columbia, May 14, when the stage of the river was reported only 1.8 feet below the flood of July, 1899. The flood entered the Gulf of Mexico about May 17. The crest of the flood was nearly twenty days in passing from Waco to the mouth of the river.

The excessive rains and overflows combined, necessitated replanting one-third of the cotton that had been planted in the counties bordering on the Brazos River south of McLennan County. Some farms in the bottoms have been abandoned for the season. In places the lands were damaged to a greater extent than by the flood of July, 1899.

The flood warning already referred to was timely and resulted in great benefit. No loss of life was reported, except from Waco. Household goods, farming implements, stock, and other property were moved out of the Brazos bottoms and losses averted. About all the damage resulting from this flood was the loss of planted crops and washing the land, except that which occurred along tributaries of the Brazos on April 27, already mentioned.

The following reports from correspondents are interesting in this connection:

Stone City.—C. A. Glenn: The flood of April and May, this year, was within 2.5 feet of that of July, 1899, but the land was damaged more than in 1899.

Bryan.—M. W. Sims: I own a farm in this (Brazos) county about three miles above Stone City, and one in Burleson County about three miles south of Stone City. I have raised forty-one crops in the Brazos bottoms, but have never seen a year like this. I have 200 acres in this county and 250 in Burleson County that I can not even ride over (May 20) and do not expect to plant at all. Our high water this year was about like that of 1885. At the time your warning came we, in this locality, were anticipating an overflow, in fact water was out in low places, but below here, say fifty miles, people were greatly benefited by your bulletin.

Chappelhill.—Postmaster: The warning was received and immediate action was taken to save property. The value of property saved amounted to $1,000.

Columbia.—J. S. Rogers: Your telegraphic warning was received and distributed throughout this section and it was heeded. Stockmen took advantage of it in time and drove all stock out of the bottoms to higher land. The value of stock thus saved is estimated at $60,000.

The Galveston Tribune of May 7, 1900, commenting on the Brazos River flood, says:

> One thing that stands out strongly just now is the great value of the Weather Bureau's flood bulletins. The breaking of the dam at Austin was no sooner known than the Bureau sent telegrams broadcast through the Colorado Valley warning farmers and stockmen that a flood was coming. As a result stock was hurried out of the lowlands, and when the high waters came the damage was much less than would have been entailed, but for the warning.
>
> Saturday a week ago a general flood warning was sent through the lower Brazos Valley. Many of the old timers in the Brazos bottoms thought the Weather Bureau people were unduly alarmed and that the waters would not rise as much as the Bureau predicted, but now they are discovering that the Bureau was rather conservative in its prediction, for the situation is worse than expected and the amount of land submerged is the greatest in many years, excepting, of course, last year's calamity.
>
> It will not be long before the Weather Bureau will be in a position to give more accurate and detailed flood information. Arrangements are now under way and will soon be completed for official reports from various points along the rivers of the rise and fall of the waters by feet and inches. With a complete system of measurements by water gages it will be possible to forecast the extent of each flood and to notify the people down the river of just how much of a rise they must prepare to meet.
>
> The flood service along the Mississippi and its tributaries is of great value. The same system will soon be in force along the big rivers of Texas.

No chart has been drawn to represent the area flooded by these overflows. The necessary data have, however, been collected, and the area is about two-thirds of that overflowed in July, 1899, and reference is made to the chart of that flood, fig. 2, published in the MONTHLY WEATHER REVIEW, July, 1899, page 297.

FRESHETS.

There were freshets in the drainage basins of the Red, Trinity, and Colorado rivers as a result of the rains of April 27 and 28. There was quite an overflow of the Trinity River in the vicinity of Dallas where the stage of the river, April 30, was reported 52 feet above the low water mark. One person was drowned at Dallas. South of Dallas the volume of water did not much exceed the carrying capacity of the channel of the river.

OBSERVATIONS AT HONOLULU.

Through the kind cooperation of Mr. Curtis J. Lyons, Meteorologist to the Government Survey, the monthly report of meteorological conditions at Honolulu is now made partly in accordance with the new form, No. 1040, and the arrangement of the columns, therefore, differs from those previously published.

Meteorological observations at Honolulu, May, 1900.

The station is at 21° 18′ N., 157° 50′ W.
Hawaiian standard time is 10h 30m slow of Greenwich time. Honolulu local time is 10h 31m slow of Greenwich.
Pressure is corrected for temperature and reduced to sea level, and the gravity correction, —0.06, has been applied.
The average direction and force of the wind and the average cloudiness for the whole day are given unless they have varied more than usual, in which case the extremes are given. The scale of wind force is 0 to 12, or Beaufort scale. Two directions of wind, or values of wind force or amounts of cloudiness, connected by a dash, indicate change from one to the other.
The rainfall for twenty-four hours has always been measured at 9 a. m. local or 7:31 p. m. (not 1 p. m.), Greenwich time, on the respective dates.
The rain gage, 8 inches in diameter, is 1 foot above ground. Thermometer, 9 feet above ground. Ground is 43 feet, and the barometer 50 feet above sea level.

Date.	Pressure at sea level.	Temperature.		During twenty-four hours preceding 1 p. m., Greenwich time, or 2:29 a. m., Honolulu time.									Total rainfall at 9 a. m., local time.
				Temperature.		Means.		Wind.		Average cloudiness.	Sea-level pressures.		
		Dry bulb.	Wet bulb.	Maximum.	Minimum.	Dew-point.	Relative humidity.	Prevailing direction.	Force.		Maximum.	Minimum.	
	*	†	†			‡	‡		§				
1	30.05	65	63.5	80	64	58.7	67	n.	2	2	30.08	29.99	0.02
2	30.05	71	64	76	64	62.3	73	nne.	3	3	30.10	30.01	0.01
3	30.07	72	63.5	78	68	59.7	62	ne.	4	4	30.11	30.03	0.00
4	30.04	73	64	79	71	61.0	64	ne.	4	4	30.12	30.02	0.00
5	30.04	72	65	81	72	61.3	62	ne.	4	4	30.08	29.99	0.01
6	30.04	73	66	79	71	61.0	62	ne.	4-6	3-4	30.07	29.97	0.00
7	30.06	73	65.5	80	72	62.7	66	ne.	5	3	30.11	30.02	0.02
8	30.04	72	64	79	72	61.0	62	nne.	5	3	30.11	30.02	0.00
9	30.02	71	64	80	72	59.3	59	ne.	4	5	30.07	30.04	0.01
10	30.03	70	66.5	80	71	61.3	64	ene.	4	3-7	30.08	29.97	0.07
11	30.07	72	67	78	69	66.5	81	ene.	3	9	30.09	30.01	0.05
12	30.09	72	65	80	70	64.5	71	ne.	3-4	4	30.12	30.04	0.00
13	30.05	70	68	82	64	61.5	63	nne.	3	2	30.11	30.03	0.01
14	30.03	68	66	83	70	65.3	73	ne.	3-0	8	30.08	30.02	0.01
15	30.03	72	66	82	67	65.5	76	ene.	2	8	30.07	30.00	0.30
16	30.04	73	66	81	70	64.5	70	ne.	2-4	5	30.08	30.00	0.11
17	30.08	73	67.5	81	71	64.3	71	ne.	2-4	3-8	30.12	30.03	0.15
18	30.05	71	66	81	70	64.5	68	ne.	3	2	30.14	30.04	0.07
19	30.02	72	66	80	70	64.3	71	ne.	3	4	30.10	30.01	0.01
20	30.03	70	66	81	70	63.5	67	ne.	3-0	4	30.04	29.94	0.01
21	30.03	74	67	83	67	63.5	66	ene-ne.	3-1	4	30.01	29.93	0.02
22	30.02	74	67	82	73	65.3	68	ene.	4	3	30.08	29.98	0.00
23	30.00	74	67.5	81	74	65.0	68	ne.	5	8	30.07	30.01	0.01
24	29.96	73	65	83	73	64.7	69	ne.	4-2	3-9	30.05	29.93	0.10
25	29.97	73	67	81	70	63.0	64	ne.	4	6	30.00	29.95	0.09
26	30.02	73	67	81	71	65.0	68	ne.	2-4	6	30.05	29.97	0.10
27	30.02	73	66	80	71	65.0	69	ne.	2-4	6	30.09	30.01	0.14
28	29.96	71	67	82	71	63.7	66	ne.	3	1	30.05	29.97	0.10
29	29.94	72	67	82	68	65.0	72	ne.	2	6	29.98	29.91	0.04
30	29.93	74	68	82	70	64.7	67	ne.	3	1	29.96	29.89	0.02
31	29.95	74	67	83	73	66.0	68	ne.	4	3	30.02	29.90	0.02
Sums.													1.60
Means.	30.024	72.0	65.9	80.8	70.4	63.5	67.6		3.2	4.4	30.072	29.989	
Departure.	+0.008					0.0	—2.7			0.0			—1.40

Mean temperature for May, 1900 (6+2+9)+3=74.9°; normal is 74.2°. Mean pressure for May (9+3)+2 is 30.029; normal is 30.021.
*This pressure is as recorded at 1 p. m., Greenwich time. †These temperatures are observed at 6 a. m., local, or 4:31 p. m., Greenwich time. ‡These values are the means of (6+9+2+9)÷4. §Beaufort scale.

OREGON WEATHER AND BERING SEA ICE.

By E. A. BEALS, Forecast Official and Section Director Weather Bureau, dated June 26, 1900.

Referring to the article Oregon Weather and Bering Sea Ice, in the April number of the MONTHLY WEATHER REVIEW, I believe the thread of coincidence between these to be very slender; it is not altogether lost, if instead of using the average dates the vessels were in the ice, the date of the first vessel's emergence therefrom is taken, as was done by me in the March report of the Oregon Section.

The following tables gives the data thus tabulated, which not only shows, under the five year groupings, a slight excess in temperature, but a quite marked deficiency in precipitation, instead of the reverse, as published in the MONTHLY WEATHER REVIEW.

It would seem to me that the date of the first vessel's emergence from the ice is a better representation of the ice condition than that obtained by taking a date based upon the average time a varying number of vessels, differing in construction and motive power, were encompassed by ice.

Years.	Earliest emergence from ice.	May rainfall at Portland.	May mean temperature at Portland.
	Date.	*Inches.*	°
1890	122	1.08	60.6
1891	150	1.83	59.9
1892	139	0.80	59.0
1893	149	2.30	54.4
1894	134	1.09	55.5
1895	146	3.42	55.9
1896	139	3.55	52.2
1897	127	0.90	61.4
1898	136	1.78	56.6
1899	135	3.16	51.1

EARLY YEARS.

Years.	Average date of first emergence from ice.	May rainfall at Portland.	May mean temperature at Portland.
	Date.	*Inches.*	°
1890	122	1.08	60.6
1897	127	0.90	61.4
1894	134	1.09	55.5
1899	136	3.16	51.1
1898	136	1.78	56.6
Average..	131	1.60	57.0

LATE YEARS.

1896	139	3.55	52.2
1892	139	0.80	59.0
1895	146	3.42	55.9
1893	139	2.30	54.4
1891	150	1.83	59.9
Average..	145	2.38	56.3

LOCAL STORM AT SPRINGFIELD, MO.

By J. S. HAZEN, Observer, Weather Bureau.

The storm of wind and rain which passed over Springfield, Mo., Sunday forenoon, June 17, 1900, exhibited so many unusual and striking features that a brief description of the weather conditions preceding and during the storm may prove of value.

The maximum temperature before the storm was 82°, but the air impressed one as being much warmer. The close and muggy condition made exertion of any kind difficult. Many people remarked the oppression and difficulty in breathing. The day was an excellent storm breeder, and the observer added to the morning weather report "conditions threatening."

The day opened with a low bank of heavy cumulus clouds, apparently very thin, and extending along the northwestern horizon, but with no precursor of a storm in the shape of upper clouds.

By 8:30 a. m., the sky was perhaps 75 per cent obscured, and a light rain fell from 8:30 to 8:45 a. m. The clear sky could be seen, however, in the interstices between the clouds even while the rain was falling.

The shower gave no relief from the oppressive condition, and by 9:30 a. m. a cloudless sky, a broiling sun, and steaming earth added to the inconvenience and suffering of sweltering humanity.

At 11 a. m. a second bank of clouds was observed near the northwest horizon. By 11:30 a. m. this bank of clouds had become so threatening as to be noticeable. The sky was at

this time probably eight-tenths obscured with heavy cumulus and stratus clouds; the round lumpy cumulus clouds were underneath the more compact stratus formation. No whirling motion was observed, and no attention would likely have been paid the storm, had it not been for the intense inky blackness of the clouds and their steady progression against the wind which was blowing at the rate of about 14 miles per hour from the southeast; the clouds were moving directly from the northwest and very rapidly.

A heavy downpour of rain began at 12:06 p. m., with sky now entirely overcast, but the wind still from south to southeast. At 12:16 p. m. the wind suddenly shifted from south to northwest, and increased in velocity from 12 to 50 miles per hour in less than five minutes, reaching a maximum velocity of 63 miles per hour, and an extreme velocity of 75 miles per hour at about 12:30 p. m. The cable connecting the anemometer to the self-register was broken at 1 p. m., and no record was obtained until after 4 p. m., but the gale continued until about 2 p. m., with but slightly diminished intensity. By 3 p. m., however, the wind had fallen to 8 miles per hour, and had changed to the southeast.

The rain literally came down in sheets, and the storm probably comes as near to reaching the dignity of a cloud-burst as any rainfall ever observed here. There was no preliminary sprinkle as a curtain-raiser, but the curtain was pulled aside and the rain literally poured; 3.02 inches fell from 12:06 to 12:45 p. m., and the sky became so dark that gas was lighted in churches and offices.

The following barometer readings will show that the fluctuations in the atmospheric pressure were larger than ordinary:

Time.	Temperature.	Barometer.	Time.	Temperature.	Barometer.
	°	*Inches.*		°	*Inches.*
12:06 p. m.	81.0	28.646	12:30 p. m.	80.0	28.523
12:10 p. m.	81.0	28.636	12:45 p. m.	80.0	28.640
12:20 p. m.	81.0	28.630			

At about 12:30 p. m. a heavy trap door on the roof of the Government building was thrown open with sufficient force to break a new quarter-inch cord; the windows and doors were all closed at the time, showing very strong outward pressure. The windows of two buildings near this one had their sashes blown out at about the same time.

The electrical display was vivid but not more than ordinarily severe. The storm was entirely local in extent, although from the amount of rain and the time the gale lasted it would appear impossible that the stupendous energy could have been confined to a prescribed locality.

PROF. P. E. DOUDNA.

By F. CAJORI.

Meteorology has lost a promising investigator in the person of Pearl Eugene Doudna, who at the time of his death held the position of assistant professor of mathematics in Colorado College. Mr. Doudna died at Colorado Springs on the 6th of last January. For five years he had been in charge of the voluntary meteorological station maintained by Colorado College. During the last few months of his life he was engaged in arranging for publication the local meteorological data, reaching back over many years. With the help of a few students the task was completed the day after the beginning of his last illness.

Mr. Doudna published, in Vols. VII and VIII of Colorado College Studies, a paper entitled Equations of Motion of a Perfect Liquid and a Viscous Liquid, which displays power in original research and is well worthy of examination on the part of specialist on this subject.

Mr. Doudna was born in Richland County, Wis., in 1868. He graduated from the University of Wisconsin in 1894 and was made fellow in mathematics at his alma mater. In 1895 a serious illness compelled him to resign. He went to Colorado Springs and became connected with Colorado College. For five years he taught mathematics with signal success. He interested several students in meteorology, and it was his plan during the coming year to offer a regular course on this subject.

HALO AT DETROIT, MICH., MAY, 1900.

By JOHN K. HOOPER, Observer Weather Bureau.

An optical phenomenon which was observed at Detroit, Mich., the morning of May 19, 1900, is deemed sufficiently interesting to meteorologists generally to record at length, because of its remarkable distinctness, and the beauty and novelty of its design. While halos of different radii are common at Detroit, optical phenomena of this magnitude and brilliancy are of rare occurrence.

It brought forth numerous startling theories as to its origin and forecasts of events to occur, and proves again that mediæval superstitions are not outgrown; it seemed as if all who saw it besieged the Weather Bureau station with inquiries, the telephone bell ringing continually during the exhibition.

The phenomenon was first noted at 11:15 a. m., seventy-fifth meridian time. It then consisted of two complete circles of 22° and 45° radii around the sun. The former was of vivid brightness, red on the inside, changing to yellowish white at the outer edge; it was doubled also, the circles but a fraction of a degree apart, yet showing the separation plainly, intersecting each other at points directly above and below the sun, bearings north-northwest—south-southeast. The circle of 45°, which contained all the colors of the spectrum, though the red predominated, was not as bright.

Soon after the phenomenon was first observed the latter grew faint at the point immediately above the sun; it faded evenly along both the east and west portions, and at 11:30 a. m., when about 90°, had disappeared; a white circle, with a radius of 22°, became visible, having for its center the upper intersection of the double inner circles, cutting those and passing through the sun but forming no parhelia.

The maximum was reached at 12 noon. At 12:15 p. m., when more of the circle of 45° had faded, there appeared three white segments, the apparent radius of each 45° convexly in contact with the inner halo, one bearing directly north, the others east and west, and the first forming a faint parhelion at its junction with that circle. At this time the complete white circle had faded materially. By 1 p. m. the white portions of the design had vanished, as had nearly all of the 45° halo, except a small arc directly under the sun. From this time the balance of the design grew indistinct, and by 1:30 p. m. all but a faint partial halo of 22° had disappeared. At 2 p. m. it had vanished altogether.

The sunrise was obscured by alto-stratus cloud formations, and this type prevailed during the morning. At 10:30 a. m. a huge mass of alto-stratus was noted approaching from the west, and by 11 a. m. the edge of the mass was in the vicinity of the sun. The clouds were decidedly grayish in color and smooth in texture, overspreading the sky toward the west. Much of the gray color had disappeared by 12:30 p. m., and the smoothness was less noticeable from that time. By 1 p. m. the mass showed signs of disintegration, and at 1:30 p. m. large patches of blue sky were in view in all directions; by 2 p. m. only small broken patches of cloud remained.

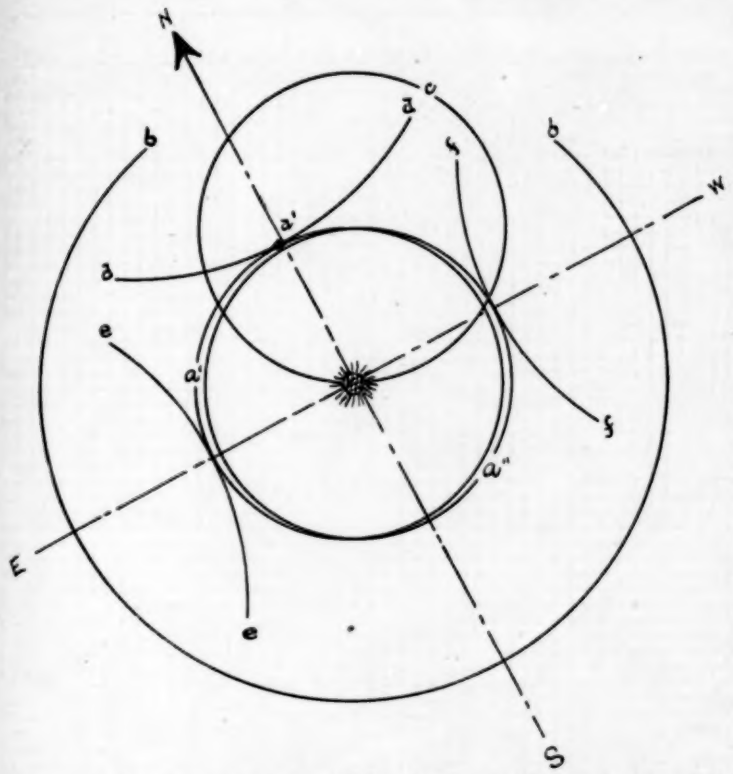


FIG. 2.—*a' a''* Complete circles of 22°, with intensely bright prismatic colors (red on inside). The space about the sun encircled by these halos was darkened to a considerable degree.

b b A portion of a circle of 45°, also in prismatic colors (red on inside), though not so bright.

c A complete circle, white in color, having for its center the upper intersection of *a' a''* and passing through the sun.

d d A segment, white in color, apparent radius 45°, which joined *a''*, showing a faint parhelion (*d'*) at junction.

e f Similar segments to the foregoing, without parhelia.

The radii were estimated without instruments; the bearing was taken by means of the direction arms of the station anemoscope.

LAKE LEVELS AND WIND PHENOMENA.[1]

By ALFRED J. HENRY, Professor of Meteorology.

Through the courtesy of the officials of the Engineer Corps, United States Army, in charge of the survey and improvement of the Great Lakes, we have been furnished with a continuous record of the fluctuations in lake level for several months past, at Amherstburg, Ontario, mouth of the Detroit River, and Buffalo Harbor, Lake Erie. These records, in conjunction with the continuous records of wind direction and velocity and atmospheric pressure made at the Weather Bureau offices in Detroit and Buffalo, furnish the material for a study of the mechanical effect of the wind in raising and lowering the level of the lake at the points above named.

It has been known for some years that general winds, as distinguished from local winds, blowing parallel to the longer axis of the main body of the lake, have a tendency to heap up the water at the end of the lake toward which they blow, and to depress it at the opposite end. Owing to the convergence of the shore lines at Buffalo the heaping up of the waters in that harbor, under the influence of a southwesterly wind, becomes a serious menace to the safety of wharf and dock property. Likewise, owing to the shoal water at either end of the lake, a decrease in the available depth in the harbors and channels produces vexatious delays and frequent groundings.

As a first attempt to correlate atmospheric phenomena and fluctuations of lake level, we have platted the data of wind direction and velocity at the Weather Bureau stations of Buffalo and Detroit, and the fluctuations of lake level as registered by the gages maintained by the Engineer Corps at Buffalo and Amherstburg, respectively, for March, 1900. The record for the entire month can not be reproduced on this chart, but we present in the accompanying diagrams the curves for March 4 to 10, and from noon of March 22 to noon of March 29. The first diagram (Fig. 3) illustrates the fluctuations in lake level consequent upon the passage of a storm moving from the Mississippi Valley northeasterly across the Lake region. It will be noticed, having reference particularly to that portion of the diagram included between 4 a. m. of the 5th and 4 a. m. of the 7th, that at Amherstburg the water first rose then fell and rose again, and that the oscillations at Buffalo were almost the exact converse of those at Amherstburg.

The fall in level at Buffalo and the corresponding rise at Amherstburg are due, as is generally known, to the northeasterly winds in front of the advancing storm. As the storm center passes Amherstburg, let us say, the wind shifts or backs, as the case may be, to a westerly quarter; likewise, as the storm center advances successively from point to point between Amherstburg and Buffalo, the winds along the line of movement of the storm center also change direction from an easterly to a westerly quarter. When the shift of wind occurs the water is above the mean level at the western end of the lake and below at the opposite end. The new impulse given to the lake waters by the westerly winds generates a second oscillation in a direction contrary to the first, viz, from west to east, and the cycle of changes is completed when the water finally returns to the level it had before the advent of the storm. The amplitude of the oscillations may reach an extreme value of 6 or 7 feet, but, in general, it is considerably less.

The records thus far obtained show that the oscillations do not occur with all storms, and that a given wind velocity does not necessarily produce a corresponding change in water level.

The period of the oscillation depends largely upon the time the easterly winds prevail, since there will be no reflex movement of the water until the wind changes to a westerly quarter. When this change takes place the concluding phase of the oscillations seems to occupy from twelve to sixteen hours, notwithstanding the fact that the wind may persist at a high velocity.

The second diagram (Fig. 4) is in some respects similar to the first. It, too, illustrates the passage of a storm, but with this important difference, viz, the center of the storm passed due east across Lake Erie and the wind *backed* to the northwest instead of shifting to the southwest, as in the first storm. The velocity of the wind was not nearly so high as in the first case. The northeasterly winds of the second storm caused an elevation of the waters at Amherstburg and a depression at Buffalo, as in the first storm, but here the similarity of the phenomena ends. The impulse given the water by the northwest winds seems to have created a transverse rather than a longitudinal oscillation; that is to say, an oscillation across the lake from the Canadian to the American shore, instead of lengthwise of the lake, as happens with northeasterly winds. It will also be noticed that the period of the oscillations from about 4 p. m. of the 26th to noon of the 27th is shorter than that of the succeeding days and at other times when longitudinal oscillations prevail, as might be expected. The oscillations from 6 p. m. of the 27th to noon of the 29th appear to be characteristic of fair weather, with light to moderate winds. The synchronism of the times of high water at Amherstburg and low water at Buffalo, and vice versa, is almost perfect. The period of oscillation is likewise fairly constant, ranging from six to eight hours for a half oscillation and from twelve to sixteen hours for a whole oscillation. The computed time of a whole oscillation, assuming the lake to have a mean depth of 50 feet, is, roughly speaking, seventeen hours.

While the information on the subject is as yet too fragmentary to admit of drawing trustworthy conclusions, this much seems to be apparent: The oscillations are stationary rather than progressive. A wave of water is not propagated, in the ordinary sense of that word, from one end of the lake to the other, but the whole lake oscillates about a pivotal or nodal line, which, in the case of longitudinal oscillations, may be said to cross the lake about the longitude of Fairport, Ohio. Although we have no instrumental evidence of the fact, it may be assumed that, as in the case of similar oscillations in other landlocked bodies of water, the oscillations at the nodal line are zero, increasing to a maximum at the respective ends of the lake. Dangerous currents in midlake are not likely to be engendered by these temporary oscillations.

It is within the range of probability that the occurrence of the more pronounced oscillations can be forecast by the Weather Bureau at no distant period.

[1] Reprinted from the Lake Chart for July, 1900.

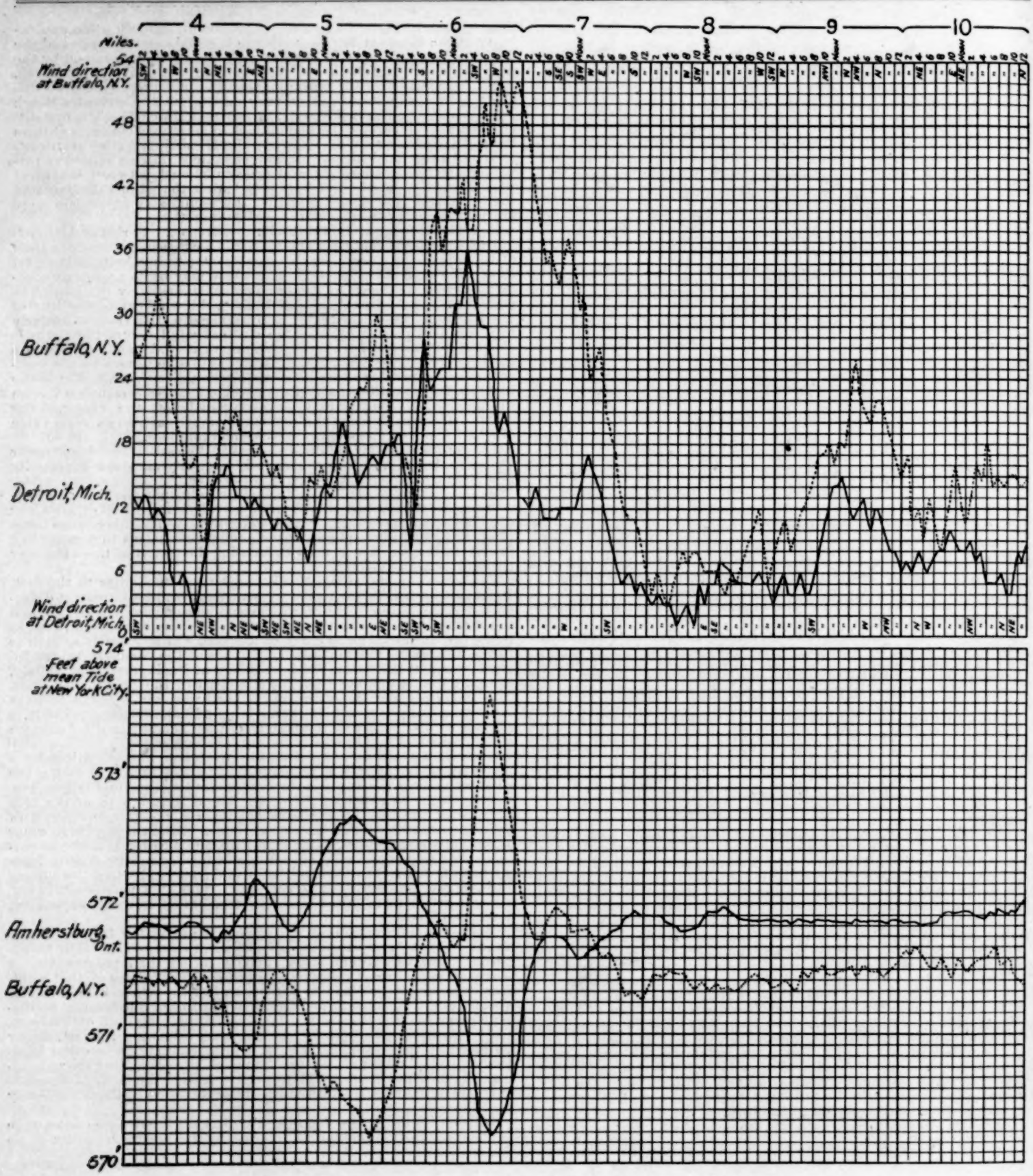


FIG. 3.—Oscillations in lake level and wind phenomena, March 4–10, 1900.

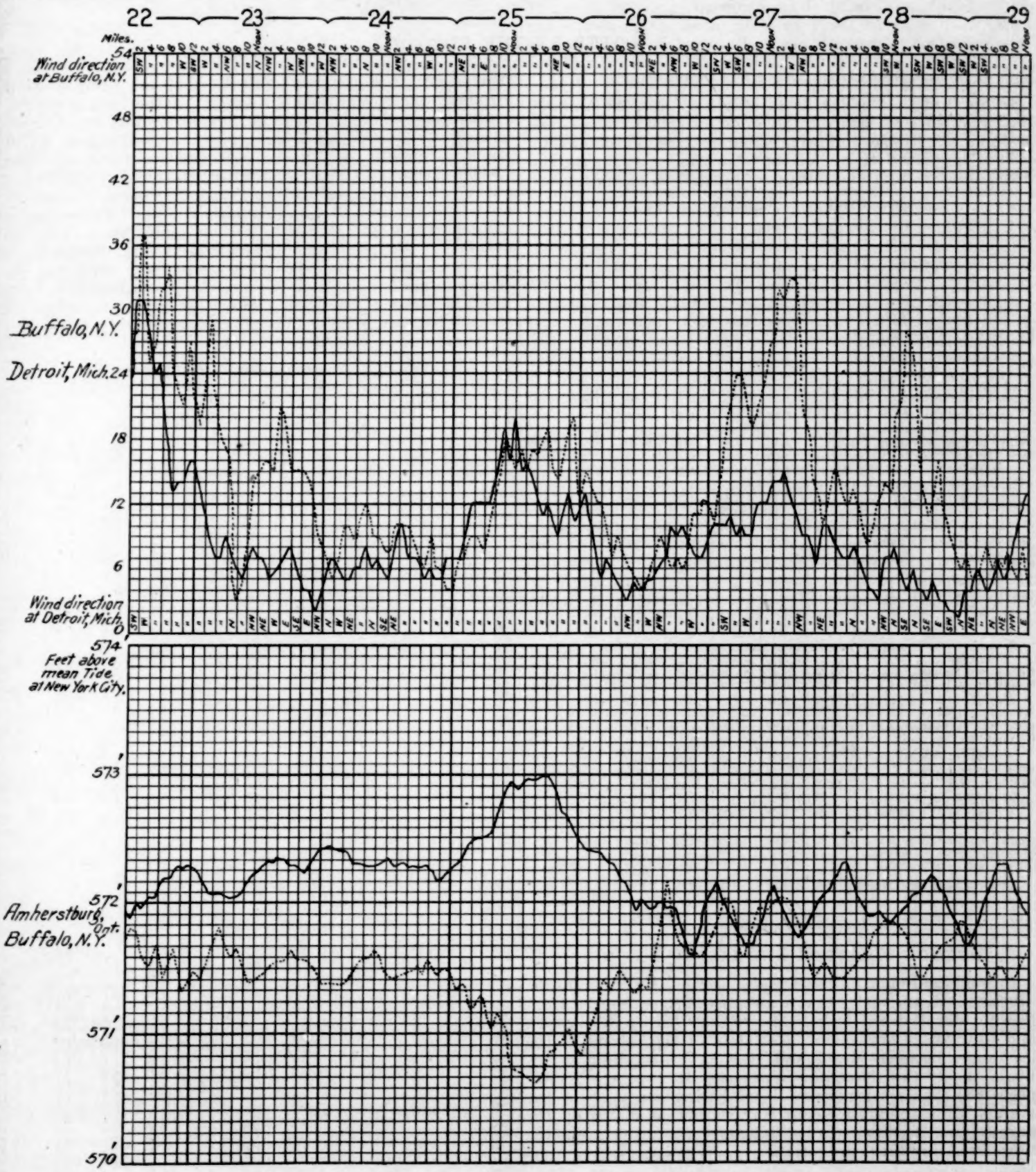


FIG. 4.—Oscillations in lake level and wind phenomena, March 22-29, 1900.

NOTES BY THE EDITOR.

RAINFALL IN JAMAICA FOR 1899.

In his Bulletin No. 254, dated March 6, 1900, Mr. Maxwell Hall publishes all the rainfall data for 1899 for the Island of Jamaica. In the following table we give the details for each of his four divisions of the island, and also for the stations, of maximum and minimum rainfall in each division:

Rainfall data for 1899 for the Island of Jamaica.

Divisions.	January.	February.	March.	April.	May.	June.
NORTHEASTERN.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
Mooretown, Portland	20.65	13.18	9.42	13.51	6.90	13.61
Manchioneal, Portland	8.31	2.24	3.81	7.35	1.58	2.25
Average of 27 stations	8.39	4.79	4.89	4.44	3.93	4.91
NORTHERN.						
Point Hill, St. Catherines	0.80	1.73	2.97	7.72	4.62	3.10
Holland Pen, Trelawny	0.70	1.35	2.43	2.40	1.29	1.75
Average of 58 stations	2.22	2.74	2.32	4.32	2.15	3.10
WEST-CENTRAL.						
Darliston, West Moreland	2.92	4.83	7.40	10.20	18.58	10.21
Ulster Spring, Trelawny	1.56	2.37	4.70	3.13	8.96	3.91
Average of 31 stations	2.86	2.69	5.27	6.64	6.75	8.14
SOUTHERN.						
Pepper, St. Elizabeths	0.68	0.30	1.91	10.45	8.43	5.63
Lunatic Asylum, Kingston	0.81	0.46	1.77	1.97	1.00	0.00
Average of 40 stations	2.38	1.16	2.56	3.78	3.93	2.51
General mean for Jamaica	3.96	2.84	3.76	4.80	4.20	4.66

Divisions.	July.	August.	September.	October.	November.	December.	Year.
NORTHEASTERN.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
Mooretown, Portland	10.50	8.48	13.28	30.86	62.27	36.20	238.86
Manchioneal, Portland	1.69	0.85	2.68	26.63	8.50	3.66	69.55
Average of 27 stations	3.81	3.48	6.98	25.44	25.33	14.66	112.10
NORTHERN.							
Point Hill, St. Catherines	5.13	8.61	5.49	29.08	13.80	7.15	9.29
Holland Pen, Trelawny	0.20	1.35	1.35	13.15	12.30	4.82	43.09
Average of 58 stations	2.12	2.58	5.34	16.50	12.36	5.56	61.31
WEST-CENTRAL.							
Darliston, West Moreland	12.26	9.83	14.35	32.75	12.63	3.83	139.79
Ulster Spring, Trelawny	2.78	3.78	9.65	20.10	11.97	4.78	77.69
Average of 31 stations	6.21	7.68	10.96	28.20	11.17	4.71	101.28
SOUTHERN.							
Pepper, St. Elizabeths	7.35	4.02	18.10	38.58	15.42	6.70	117.57
Lunatic Asylum, Kingston	1.44	0.18	3.19	9.32	8.43	4.81	33.38
Average of 40 stations	3.29	3.14	6.47	23.76	11.10	4.54	68.62
General mean for Jamaica	3.86	4.22	7.44	23.72	14.99	7.37	85.82

OREGON WEATHER AND BERING SEA ICE.

In the May report of the Oregon section, Mr. E. A. Beals, Section Director, says that "an unconfirmed report from Dutch Harbor, dated May 15, states that Bering Sea is open and clear of ice for vessels. The date of the retreat of the ice ranges between May 2 and May 30." According to Mr. Beals' theory (see MONTHLY WEATHER REVIEW, April, 1900, page 163) the pack ice should leave Bering Sea at about the average time, therefore, about May 16, but, as shown on the page referred to, the recorded data are not uniform enough to warrant any exact deductions.

SEASONAL FORECASTS IN COLORADO.

In the MONTHLY WEATHER REVIEW for April, page 155, we have given some of the results deduced by Mr. F. H. Brandenburg from the records of temperature and rainfall at Denver, Colo. In general he shows that the compensation for abnormal seasons does not appear in the immediate following season, but at irregular intervals which are difficult to predict. The fundamental tables of departures on which Mr. Brandenburg based his investigation are worthy of wider dissemination, and in order that others may investigate the question from any point of view that may occur to them we accordingly reprint Mr. Brandenburg's tables. Table 1 gives the departures of each monthly mean temperature from the normal for that month, and Table 2 gives similar departures for the rainfall. The departures are positive when the observed values are above the normal, and are negative when they are below. The normal values are given at the bottom of each column, so that the individual monthly values can be reproduced if needed.

TABLE 1.—*Temperature departures at Denver, Colo.*

Year.	January.	February.	March.	April.	May.	June.
	°	°	°	°	°	°
1872	.....	.....	.....	.....	0.2	0.3
1873	1.7	— 1.3	6.4	— 6.6	— 2.8	2.4
1874	3.9	— 6.2	— 1.9	— 4.3	4.2	2.9
1875	—10.5	1.3	— 4.1	— 2.6	4.3	2.9
1876	— 0.6	6.3	— 3.5	1.0	0.2	— 1.1
1877	— 4.4	3.6	4.0	— 3.7	— 0.3	— 2.0
1878	— 2.4	5.3	6.5	2.6	— 1.8	— 2.4
1879	— 3.8	4.9	7.7	2.6	4.8	2.4
1880	7.8	— 3.0	— 4.2	0.0	1.7	1.3
1881	— 2.6	— 1.9	— 0.3	6.1	4.0	5.2
1882	0.0	5.8	3.5	— 0.8	— 3.6	— 1.3
1883	— 0.8	— 9.7	4.7	— 2.3	— 2.6	— 2.3
1884	3.0	— 1.8	0.4	— 4.6	— 2.6	— 0.3
1885	— 0.4	0.7	0.6	— 0.7	— 3.7	— 1.9
1886	— 6.7	7.2	— 4.4	— 2.0	5.1	— 0.9
1887	2.1	0.7	7.2	0.7	2.4	2.3
1888	— 0.4	7.1	— 5.0	5.6	— 3.0	1.1
1889	— 1.4	— 2.3	4.5	3.5	— 1.3	— 2.4
1890	— 0.4	2.1	2.2	0.4	0.9	0.9
1891	— 3.2	— 5.1	— 6.6	0.4	— 0.6	— 3.3
1892	— 2.6	1.6	— 2.4	— 1.8	— 5.3	— 1.9
1893	9.7	— 0.5	— 0.8	— 2.5	— 2.5	1.9
1894	2.8	— 7.0	1.4	2.0	2.2	— 0.7
1895	— 0.2	— 5.3	— 1.6	2.2	— 1.2	— 4.9
1896	8.8	5.9	— 1.6	2.0	2.0	1.5
1897	— 2.0	— 0.7	— 3.1	— 0.2	3.8	— 1.5
1898	0.6	5.9	— 3.1	1.8	— 3.8	0.3
1899	1.8	—14.3	— 5.6	1.2	0.0	0.1
Normal	28.6	31.9	38.8	47.6	56.8	66.7

Year.	July.	August.	September.	October.	November.	December.	Annual.
	°	°	°	°	°	°	°
1872	— 3.1	— 1.5	... .	.....	.....	— 3.8	.....
1873	0.3	1.1	— 1.6	— 4.2	3.7	— 9.2	— 0.8
1874	4.0	2.9	— 2.0	2.4	3.7	— 1.0	0.7
1875	— 3.1	— 0.5	1.3	5.5	— 1.0	6.8	0.0
1876	2.0	— 0.3	— 0.3	1.4	— 1.1	— 4.3	0.0
1877	2.4	1.5	0.1	— 4.6	— 2.9	1.5	— 0.4
1878	3.8	3.8	— 2.4	— 0.5	3.2	—10.0	0.5
1879	2.0	0.1	0.3	2.9	0.9	— 4.1	1.7
1880	— 0.7	— 0.5	— 0.6	— 2.3	—16.8	— 2.0	— 1.6
1881	3.6	2.5	— 2.3	0.3	— 2.4	7.4	1.6
1882	— 1.1	1.0	0.6	0.5	— 0.6	3.5	0.6
1883	— 1.6	0.3	— 0.4	— 3.7	4.8	0.8	— 1.1
1884	1.2	— 3.0	1.6	4.4	3.9	— 7.5	— 0.4
1885	— 0.1	— 2.1	0.0	— 0.2	5.1	4.3	0.1
1886	2.0	0.9	— 2.4	1.0	— 5.8	3.3	— 0.2
1887	— 2.5	— 2.1	0.5	— 2.6	2.1	— 1.7	0.8
1888	2.0	— 2.9	0.0	0.1	— 1.8	5.1	0.7
1889	— 0.2	1.9	— 2.8	0.9	— 6.4	8.4	0.2
1890	2.6	— 1.9	— 0.3	— 1.4	1.5	7.2	1.2
1891	— 3.3	— 1.7	1.4	1.3	— 1.0	— 0.8	— 1.9
1892	— 0.3	0.5	3.2	— 0.7	4.1	— 5.3	— 0.9
1893	1.2	— 0.9	0.6	0.5	0.2	6.1	1.1
1894	— 0.6	0.3	— 0.2	3.1	6.0	— 0.4	0.7
1895	— 4.8	— 0.7	2.8	— 0.2	— 1.0	1.9	— 1.1
1896	— 0.3	0.9	— 1.6	— 0.8	— 2.9	6.7	1.7
1897	— 2.4	— 1.3	3.5	0.1	2.0	— 3.8	— 0.5
1898	0.2	1.7	— 0.9	— 1.9	— 3.0	— 6.3	— 0.8
1899	— 1.8	1.0	2.2	— 1.5	6.0	— 1.8	— 1.1
Normal	72.2	70.9	62.8	50.9	38.8	32.1	49.8

TABLE 2.—*Rainfall departures at Denver, Colo.*

Year.	January.	February.	March.	April.	May.	June.
	Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
1872	0.01	−0.31	−0.02	0.19	0.98	0.71
1873	−0.41	−0.29	−0.71	0.53	−2.01	0.88
1874	0.30	0.00	−0.44	−0.20	−0.33	−0.15
1875	−0.16	0.07	−0.54	0.34	−0.82	−0.93
1876	−0.33	−0.42	0.87	−0.68	5.81	−0.26
1877	1.36	−0.13	0.47	0.87	−0.46	0.57
1878	−0.44	−0.05	0.89	−1.85	0.14	1.42
1879	−0.14	−0.14	0.07	0.72	0.60	−1.04
1880	−0.16	−0.21	−0.72	−1.59	−1.65	−0.14
1881	−0.04	0.69	−0.06	−1.40	−0.55	−1.27
1882	0.03	−0.33	−0.73	−0.43	0.22	3.60
1883	1.81	−0.08	−0.72	1.20	1.54	−0.51
1884	−0.32	0.33	0.00	1.43	1.85	0.11
1885	−0.13	0.22	0.04	3.04	−0.63	−0.70
1886	0.08	0.19	1.43	0.89	−2.67	0.90
1887	0.13	−0.23	−0.70	0.26	−1.63	−0.83
1888	−0.43	−0.16	0.22	−0.19	−0.10	−1.07
1889	−0.04	0.17	−0.53	−0.56	0.68	0.52
1890	−0.36	−0.07	−0.58	0.60	−0.75	−1.36
1891	1.06	−0.26	2.17	0.59	1.39	1.57
1892	−0.14	0.22	0.27	−0.15	−0.62	−0.03
1893	−0.49	0.30	−0.70	−1.03	0.33	−1.23
1894	−0.36	0.37	−0.23	1.40	0.24	−0.97
1895	−0.22	−0.05	0.26	−0.71	0.10	1.29
1896	−0.29	−0.29	0.50	−0.97	−1.49	−0.47
1897	0.04	0.29	−0.03	−0.59	0.39	0.80
1898	−0.34	0.15	−0.65	−0.70	2.12	−0.42
1899	0.11	0.05	0.17	−1.15	−2.61	−0.89
Normal	0.54	0.53	0.93	1.90	2.76	1.36

Year.	July.	August.	September.	October.	November.	December.	Annual.
	Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
1872	0.96	0.29	0.81	−0.26	0.11	−0.37	3.10
1873	0.27	−0.05	0.13	−0.21	−0.42	−0.05	−2.34
1874	1.62	−0.78	0.58	−0.30	−0.50	−0.49	−0.69
1875	2.44	0.51	2.13	−0.72	0.70	−0.07	2.95
1876	−0.57	0.57	−0.16	−0.82	0.92	1.04	5.97
1877	−1.40	−0.16	−0.38	1.21	0.15	0.11	2.21
1878	−0.40	0.79	0.47	−0.14	0.09	0.39	1.31
1879	−1.09	−0.08	−0.74	−0.75	−0.37	−0.33	−3.29
1880	−0.35	0.00	0.13	0.43	0.25	−0.56	−4.57
1881	0.77	0.87	−0.19	−0.62	1.10	−0.66	−1.36
1882	−1.07	−0.26	−0.70	−0.19	0.13	0.07	0.34
1883	0.54	−0.71	0.32	0.55	−0.26	1.66	5.34
1884	−1.08	0.25	−0.68	−0.73	−0.39	0.10	0.92
1885	−0.40	−0.28	0.46	−0.21	−0.03	0.42	1.80
1886	−1.23	0.16	0.22	−0.61	1.35	0.21	0.92
1887	0.76	1.22	0.21	0.03	−0.36	−0.52	−1.66
1888	−1.32	0.05	−0.65	−0.17	−0.25	−0.57	−4.64
1889	1.21	−1.13	−0.48	1.17	−0.05	−0.36	0.60
1890	−0.94	0.43	−0.59	−0.30	−0.28	−0.62	−4.82
1891	−1.14	1.38	−0.03	−0.46	0.11	0.90	7.28
1892	−0.54	−0.88	−0.76	2.98	−0.14	0.66	0.87
1893	−0.59	−1.11	−0.71	−0.10	−0.03	−0.31	−5.67
1894	0.38	0.40	0.79	−0.75	−0.36	0.03	0.94
1895	2.55	−0.70	0.22	0.13	−0.31	−0.65	1.97
1896	1.07	−0.49	1.05	−0.10	−0.48	−0.35	−2.31
1897	0.33	−0.02	−0.32	0.70	−0.34	−0.03	1.22
1898	−1.06	−0.50	−0.48	0.11	0.27	0.33	−1.17
1899	0.19	0.32	−0.56	0.07	−0.58	0.06	−4.82
Normal	1.73	1.46	0.76	0.94	0.58	0.66	14.15

In general, it is evident that the study of statistics for a single station is wholly inadequate to the prediction of seasonal conditions. We not only need observations over a broad area, such as the whole of the Northern Hemisphere, but also a correct view of the mechanics of the earth's atmosphere in order to guide our study.

THE THUNDERSTORM OF MAY 16 IN IDAHO.

In connection with the thunderstorm on the above date at Boise, the barogram and thermogram at that station showed remarkable changes. The temperature fell about 25° in two hours and a half, while the pressure rose 0.30 inch in the same interval of time. It bespeaks a commendable enterprise and appreciation of the meteorological interests involved when an observer and section director combine to publish the special diagrams in the monthly section reports It would, however, be worth while to always reproduce the two curves on the same plate or block, so as to facilitate a more minute comparison between the simultaneous temperatures and pressures.

As to the reason why such corresponding changes of temperature and pressure occur in a thunderstorm it is worth noting that at least two different causes are operative. In the first place, a thunderstorm generally occurs when a wind from an area of cool, dry air underruns or pushes aside an area of warm, moist southerly winds. The very fact that the former pushes the latter aside shows that presumably a greater pressure exists within it and that, therefore, the barometer must rise when this area has established itself. In the second place, a thunderstorm is essentially due to a simple vertical interchange of warm air below and cool air overhead. The two layers of air are in unstable equilibrium and exchange places. The upper air (A) is drawn down by the force of gravity (g) prevailing at that altitude more powerfully than is the lower air (a) acted upon by its force of gravity (G). Before the overturning the joint pressure due to the weight of the atmosphere may be represented by $a\,G + A\,g$, but after the overturning the weight of the column is $A\,G + a\,g$, and the latter is greater than the former. This necessity of taking into consideration the varying products of the density by the gravity has been particularly felt of late years in the efforts that have been made to reduce barometric pressures upward or downward to other levels, and especially in the computations of the altitudes of the sounding balloons that have been used to explore the upper atmosphere. Practical formulæ for the computation of barometric pressures for each separate strata of air have been developed by Rykatcheff and by Hergesell, but most elaborately by Angot in a recent volume of the memoirs of the Central Meteorological Bureau of France.

THE HAWAIIAN STANDARD OF TIME.

In the notes accompanying the observations at Honolulu, on pages Nos. 508, 545, 8, 65, and 150 of the MONTHLY WEATHER REVIEWS for November and December, 1899, and January, February, and April, 1900, respectively, for "temperatures observed at 7:29 p. m., Greenwich time," read "4.31 p. m., Greenwich time, which is simultaneous with 6 a. m. of the local standard."

Similarly, for "the rainfall has been measured at 10:29 p. m., Greenwich time," read "7:31 p. m., which is simultaneous with 9 a. m. local standard."

Mr. Lyons says:

The rainfall began to be reported at 9 a. m., local, instead of 6 a. m., local, a year or two since, partly on account of my health and partly for the report made daily to the local newspapers.

Mr. Lyons writes that:

The Hawaiian standard time is that of the meridian of 157° 30′ W., or 10*h*. 30*m*. slow of Greenwich time, being central to the group and better for our purpose than an even hour division, and is so near the local time of Honolulu that for meteorological purposes the difference is not worth noticing.

HEAVY RAINFALL IN LOCAL STORMS.

We are sometimes asked where all the rain comes from that falls during a short time in a thunderstorm or cloudburst. Three inches of rain in an hour makes a very heavy local rain. Rainfalls from 3 inches in half an hour, up to 12 or 15 inches in an hour are spoken of as cloudbursts. The heaviest rains are those recorded at Cherrapunji, amounting to 30 or 40 inches in a day. It is very rare that rain falls from absolutely still air; in general, there is a horizon-

tal movement which we detect by the motions of the clouds, and an ascending movement which is easily seen if we study the phenomena going on within the clouds. This ascending movement is very violent in thunderstorms and tornadoes; is always present in waterspouts, and in the general heavy rains attending areas of low pressure. In studying the thunderheads or great cumulus clouds of a thunderstorm we see a rapid ascension going on at the top of the cloud nearly over the region where hail and the heaviest rain occurs. Evidently the quantity of rain that falls upon any given area represents, not merely the vapor precipitated from the air over that area at any moment, but from the successive masses of air that flow over it during any given time. Thus at Cherrapunji, India, the heavy rains drop from a rapidly-moving southwest monsoon current flowing over the Khasia Hills. It is not improper to assume that the heavy rainfalls that we call local rains, are also due to the supply of moisture brought by rapid currents flowing over any given spot. Thus, in the hailstorm, and in the center of a large cumulus cloud the currents of air ascend rapidly, while in the general widely extended rains they ascend slowly. One can easily calculate the total depth of rainfall in the column of air extending from the ground to the upper limit of the atmosphere, with results as shown in the accompanying table, prepared in 1883, but published in the Smithsonian Report for 1888, page 410. These figures apply only to still air, and are to be modified to an indefinite extent if horizontal or vertical movements are taking place.

Height of column.	Depth of water in the atmosphere corresponding to the respective dew points at the earth's surface.			
	80°	70°	60°	50°
Feet.	*Inches.*	*Inches.*	*Inches.*	*Inches.*
6,000.....	1.3	1.0	0.7	0.5
12,000.....	2.1	1.5	1.1	0.8
18,000.....	2.5	1.8	1.3	0.9
24,000.....	2.7	2.0	1.4	1.0
30,000.....	2.8	2.1	1.5	1.1

THE JUNE RISE OF THE MISSOURI AND MISSISSIPPI RIVERS.

For many years it was a popular saying that the rising waters of the Missouri and Mississippi rivers during June are due to the melting snows in the Rocky Mountain region, but the regular reports and predictions of the river conditions that have been published by the Signal Service and Weather Bureau since 1872 have long since banished this error from the minds of those familiar with the weather map. Even before regular river work began, in January 1872, the present Editor, who did the "probabilities" or indications during the preceding year, frequently had occasion to point out the fact that the rains which occurred everywhere in the watershed of the Upper Mississippi and Lower Missouri rivers contributed far more to the June rise than any possible melting of snows in the mountains. The latter serves mostly to supply water for irrigation along the beds of the smaller tributaries of the eastern Rocky Mountain slope, whereas the floods of the Lower Missouri and Mississippi rivers depend almost wholly on the rain that falls on that portion of the watershed that is below the 2,000-foot contour line.

A METEOROLOGICAL LIBRARY.

The Editor takes pleasure in calling the attention of regular and voluntary observers to the fact that the extensive collection of text-books, periodicals, and treatises on meteorology belonging to the late Prof. H. A. Hazen, is now in the hands of his sister, Miss Mary S. Hazen, 1234 Tenth street, N.W., Washington, D. C., and those who desire to obtain any of them should correspond with her. It is very much to be hoped that some college or experiment station will obtain the whole of this collection. It is very difficult to complete broken files of rare works on meteorology, and the importance of a special library is always felt during the prosecution of any scientific investigation.

The development of agricultural libraries is admirably sketched in an article by Mr. Charles H. Greathouse, in the Yearbook of the Department of Agriculture for 1899, and his opening paragraph should be the motto of librarians in every department of science:

> To furnish the right book to the right man at the right time is a problem that faces every student of agricultural affairs who would help men to better ways of farming.

A well arranged library with a good index catalogue is not only a help but an incentive to study. The progress of meteorology is impeded by the absence of a comprehensive bibliography or subject index. Many a student wastes his time solving problems that have long since been solved by others and overlooks the questions that still demand investigation. A complete index to the literature of meteorology would remedy all this.

MONUMENT TO CANTONI.

The faculty of sciences of the University of Pavia, Italy, has taken the initiative in a subscription toward the erection of a memorial monument in the University Building, in honor of Signor Professor Giovanni Cantoni. The great work that Cantoni has done in Italy for meteorology and climatology considered as branches of exact physical science insure that the subscription lists will include the names of many meteorologists.

LECTURES ON METEOROLOGY.

On May 9 the Editor had occasion to lecture before one of the private schools of Washington, D. C., and took for his theme "The clouds." No more interesting topic could be suggested, and perhaps the following synopsis may be useful to other members of the service who may have occasion to lecture on this subject.

The clouds may be studied from various points of view, artistic, poetic, or scientific. In the latter study we must begin by giving them names so as to make sure of a definite record that can be understood by others. We naturally inquire, first of all, as to their general appearances, colors, shapes, and movements. Then we find methods of measuring their altitude and absolute velocity in miles per hour. We soon observe that the upper layers of clouds move in a different direction from those of the lower layers or the lowest wind. A short study brings out the fact that internal changes of structure are going on. Then we perceive that some kinds of clouds precede fair weather, others precede rain, or snow, or wind. We notice that some kinds diminish and disappear toward sunset, others begin to appear at that time. Some kinds of distant cloud banks indicate the approach of thunderstorms, others snowstorms, and still others belong to distant hurricanes. The colors of the clouds especially at sunset are the most gorgous displays ever witnessed by man. These colors may be caused either by absorption, dispersion, or diffraction of the sunlight, and their study offers many important problems in physical optics. Generally speaking the highest clouds are white while the lower clouds begin to be colored, but as the sun descends lower and lower the highest clouds become colored. Sometimes when minute particles of moist-

ure exist in the upper atmosphere a fiery red light pervades the western sky long after the highest clouds have become invisible, as was seen throughout the northern hemisphere during 1883–1886. The color depends upon the number and size and distance apart of the particles of vapor and the lengths of the waves of light. The rainbows, halos, glories, or coronæ, mock suns, or sundogs offer another interesting series of optical phenomena depending upon the sunlight. The methods of formation of clouds form an exceedingly important study. In general, the moist air must be cooled down to its dew-point before a cloud can form, but the cooling may be effected either by a mixture of warm air with cold air, or by the radiation of heat from the warm air, or by the expansion of the warm air as it rises higher in the atmosphere. This expansion may be brought about in many ways, thus air may flow horizontally from an area of high pressure to one of low pressure, or it may be pushed up over a mountain, or over a resisting mass of denser air, or may even rise gently as it flows over an extended ascending prairie, or as it flows from the ocean over the lowlands that border a continent; again it may ascend more rapidly by virtue of its own lightness or buoyancy. At a moderate distance above the earth's surface, there is often a current of air blowing over a lower current of wind; at the boundary surface between these, great waves are formed with rollers and breakers that become visible to us whenever some of the air cools enough to form cloud. As the ascent of air cools it and forms cloud, so the descent of air compresses it, warms it up, and dissipates the cloud. It is curious that the condensation of vapor in clouds begins to take place around the innumerable particles of dust that are floating in the atmosphere and if all these could be brought to the ground, we should leave dustless air. It is much more difficult to form visible cloud particles in air that contains no dust, but still this can be done, and from the midst of the clouds great drops of water, snow flakes, and icicles appear thus to be formed. The study of a thunderstorm gives an exceedingly interesting picture of the complex combination of numerous cloud phenomena and their results. A lower current of air from the southwest is perhaps invaded by a cool, dry current from the northwest; the former is banked up, ascends, and overflows, forming great cumulus clouds upon which the sun shines, heating the illuminated half while the shaded half cools off and flows away. Below the cumulus, rain or hail falls, cooling the air and the ground, which was already cooling by reason of the absence of sunshine, and from the cool region thus formed the air flows outward at the surface of the ground, forming a special gust of cool air which advances with the moving cloud and its rainy region. Thus, an observer first sees in the west a cloud bank formed at the top of a distant cumulus, then he finds cirrus clouds floating overhead formed by the disturbance in the upper currents; then the edge of the stratocumulus cloud passes eastward over his zenith, then the lowest layers at the base of the cumulus. By this time it has become quite dark and he sees in the distance a low cloud forming at the top of the upturned edge of the gust flowing out from the coldest part of the region and the descending column of cloud or rain. The study of clouds may be prosecuted experimentally, although but few physical laboratories are provided with conveniencies for such study. The observational methods include the use of the nephoscope and the balloon as well as the establishment of mountain stations. Especially has photography come to our aid in the study of the details of the internal motions of the clouds.

The total or solar eclipse of May 28 was the occasion of an excursion to South Carolina which afforded the Editor the long desired opportunity to become slightly acquainted with that section of the country. He saw the voluntary observers at Newberry and Rockhill, and Section Director Bauer at Columbia, and spent a week in the State; enough to make him realize how little one knows of any region that he has not visited in person. The awakened interest in manufactures and the remarkable rush for education, the kindly feeling of all toward the Weather Bureau and its work, the lively interest in the development of the resources of the State, the rapid recovery from the stagnation of twenty or thirty years ago, the development of cotton mills, good roads, public schools, and agriculture, the prospect of development of commerce, the restriction on the sale of liquor, the laws regulating cattle on the highways, requiring every man to take care of his own, and relieving farmers of the necessity for fencing in their property, are among the general features that impressed him favorably. Above all was the genial hospitality abounding on every side toward the scientific visitors from all parts of the world who came to study the solar eclipse, as seen from the South Atlantic States.

Fortunately, the Chief of the Weather Bureau was able to telegraph from Washington that a cloudless day might be expected along nearly the whole path of totality, and as it turned out, the solar corona was undoubtedly observed and photographed most successfully, although the duration of totality was very short. Although an eclipse is supposed to be a purely astronomical phenomenon, yet it has meteorological bearings, and it was, therefore, proper for the Weather Bureau to take an active part in the work of that eventful morning. After that was over Professor Bigelow and the Editor turned their attention to the specific work of the Weather Bureau, and in response to numerous requests they had opportunities to explain the history and the work of the service to appreciative audiences in Newberry, Columbia, Rockhill, and Charlotte. The following abstract of a talk on the history of meteorology, may interest some readers.

The history of modern efforts at weather predictions begins properly with the labors of Prof. J. J. Hemmer, Secretary of the Meteorological Society of the Palatinate, at Mannheim in Germany, just as the study of climatology begins with the distribution of meteorological apparatus in 1653, in Italy, by the Grand Duke of Tuscany, Ferdinand II. The Mannheim ephemerides were published in thirteen volumes for the years 1780–1792, and contain the daily meteorological observations in detail for thirty-six stations in Europe, and for three stations in America. The object of this extensive publication was to afford the means for studying the relation of the weather at distant places from day to day, but we do not find that such a comprehensive use of this data was made by the society itself. The printed volumes stood for years inviting the student to discuss the questions for which they were published. H. W. Brandes, Professor at the University of Breslau, was the first to compile from those volumes, daily maps of the weather for 1783 and published some that illustrated the progress of storms, first in his Beitrage zur Witterungs Kunde Leipzig, 1820, and afterward in his Dissertation de Repentinis Variationibus in Pressione Atmosphaerae Observatis. Lipsiæ, 1826. 4to.

About this time Prof. James P. Espy removed from Cumberland, Md., to Philadelphia, Pa., and began a series of publications upon a subject which he had long studied with great enthusiasm. He first clearly saw that the latent heat of the vapor that condenses to form cloud must be the important factor in the development of cumulus clouds, thunderstorms, and tornadoes, and he subsequently extended the application of this idea to the extensive rains, the great storms, and even the West Indian hurricanes of North America. His numerous lectures and articles in this country and Europe were fol-

lowed by the publication of his Philosophy of Storms, Boston, Mass., 1842, after which he was appointed meteorologist to the United States Government and was assigned to duty, first in the War Department, afterward to the Navy Department, and eventually under the Smithsonian Institution. In 1836 he organized a joint committee of the American Philosophical Society and the Franklin Institute for the purpose of studying storms. This work was continued when he removed to Washington, D. C. Observations were gathered and numerous maps constructed, and extensive selections from these were published in his four successive reports, 1845–1860. While Espy dwelt especially on the mechanical theory of the development of storms, Redfield devoted himself to the collection of data illustrating the phenomena, and especially the general movement, of storm centers over the ocean. The general tendency of these two investigators was to establish the fact that individual features of the weather, as well as the storms, as a whole, move over the globe in such a manner that their arrival at any place can be predicted if we have at hand a series of maps showing their movement during the preceding few days. The spread of the electric telegraph throughout the United States during the years preceding 1848 suggested the possibility of compiling such weather maps regularly every day, and the first one was made, as a sample, for Prof. Joseph Henry, by Mr. J. J. Jones, of New York, in that year; but it was not until the next year that Professor Henry obtained from the telegraph companies a general concession for the free use of the telegraph lines for scientific purposes. Daily maps were made, for personal study, from that time forward for several years, and a large wall map, showing the condition of the weather day by day, began to be publicly displayed in the Smithsonian building from 1856 onward. This map was made the basis of frequent special predictions of the weather for the benefit of members of Congress and others who consulted Professor Henry. The success of these predictions furnished a strong argument for the establishment of a general weather service by the Government; but this was not effected until the demand for it came, not from the scientific meteorologists, but from the business interests of the country. In 1868 the Director of the Cincinnati Observatory was, at his own suggestion, authorized by the Cincinnati Chamber of Commerce to organize, at its expense and for the benefit of the merchants of that city, a system of daily weather reports and predictions. After this was done and in successful operation, the work was brought to the attention of the National Board of Trade, meeting at Richmond, Va., in November, 1869, and that body favorably indorsed a general memorial to Congress on behalf of all the commercial interests of the country. This memorial was prepared by Prof. I. A. Lapham and H. E. Payne, both of Milwaukee, Wis. The resulting joint resolution and the act signed by the President February 9, 1870, authorized the Secretary of War to establish a system of telegrams and reports for the benefit of commerce. This military service was transferred to the Department of Agriculture in July, 1891, and its duties were extended so as to include agriculture and all other interests affected by the weather.

When we compare among themselves the daily weather maps showing actual observations carefully made all over the country and presenting, as it were, a photograph of the atmospheric conditions twice or three times a day, one must be impressed with the fact that the predictions of the weather published by the Weather Bureau are based upon a solid foundation of facts and that its methods are radically opposed to those of the local weather prophets and the astrologers.

THE DRIFT OF THE GULF STREAM NEAR KEY WEST, FLA.

The Weather Bureau observer at Key West, Fla., Mr. W. U. Simons, communicates to the Chief of the Weather Bureau a card found in a well-sealed bottle in shallow water, half a mile east of Saddle Bunch Channel and about 12 miles north of east from Key West, about noon May 31. This card contained a notice to the effect that the bottle was deposited in the sea on April 18, in latitude 24° 18′ N. and longitude 84° 25′ W. The point of deposit was therefore about 150 miles distant, and west-southwest of Key West.

In accordance with the general policy of the Weather Bureau, the card picked up by our observer has been forwarded to the Hydrographic Office, United States Navy.

ECLIPSE SHADOW BANDS AND CORRELATED ATMOSPHERIC PHENOMENA.

The following note was prepared by the Editor for publication in 1887, and may still be of interest:

Meteorology has perhaps not much to expect from observations of the barometer and the wind during a total solar eclipse, but it has considerable interest in the shadow bands. It seems quite plausible that the explanation of these is to be found in the interference of two pencils of sunlight that have respectively passed through adjacent portions of air of slightly different densities. This should not be called a diffraction phenomenon, though it does occur when a thin sheet of light from the edge of the sun passes the edge of the moon at the moment preceding totality. Undoubtedly such a slender beam of light may cause diffraction phenomena, but if so, the diffraction bands would necessarily move onward over the earth's surface with the same relative speed as that of the moon and the earth, namely, approximately a mile a second, whereas the observed shadow bands have a velocity of only a few feet or yards per second. On the other hand, the bands may be considered as phenomena of interference of rays of light slightly inclined by reason of the irregular refractions in a nonhomogeneous atmosphere, and they must therefore have such characteristics as are impressed upon them by the condition of the atmosphere at the time; their horizontal movement must correspond nearly with that of the winds and upper currents in the atmosphere. In fact, we need not necessarily speak even of interference phenomena. Every small mass of descending dense air constitutes a rough sort of lens or prism, the beam of light that passes through it must be deflected and the atmospheric mass casts a shadow on the ground, like a lens or prism of glass. Such phenomena may be seen when the air is very much disturbed even in ordinary full sunlight but become much better defined when the sun's disk is reduced to a slender crescent, as during the few seconds preceding and following totality. If there be no small masses of rising hot and descending cold air, but if we conceive the layers of the atmosphere to have definite horizontal surfaces thrown into waves, then the refraction of the light as it passes through these waves would certainly produce beams of light having slight inclinations to each other, which would produce shadows and interferences when they intersect. All interference phenomena in sunshine under favorable circumstances give rise to bands of color rather than alternate bands of darkness and brightness. We are, therefore, inclined to speak of the shadow bands as really shadows produced by the irregular refractions of the atmosphere rather than as pure interference phenomena, although they may partake of the character of both, but they certainly have not the characteristics of diffraction bands, properly so called. Similar shadows contribute materially to the rather complex phenomena of twinkling or scintillation. When a very bright star is observed near the horizon, it not only flickers as to color and brightness, but actually disappears momentarily, due to the fact that its light is refracted so far away from the eye that none of it enters the pupil. The shadow bands

that are seen when an electric arc light throws the shadow of a flame and its stream of hot air upon a white wall, are therefore quite analogous to those seen during total eclipses. In fact, it might be possible to exactly reproduce the eclipse shadow bands by causing the shadow of the edge of a disk or wall to fall upon a white surface placed at a great distance therefrom, were it not that streams of hot air from the illuminated sides of the wall are apt to overpower the more delicate atmospheric effect that we desire to observe.

When the sun is near the zenith the horizontal movements of the shadow bands must be due merely to the horizontal movement of the atmosphere carrying the warm and cold masses along with it. When the sun is near the horizon then the vertical motion of the shadow bands is principally the result of the vertical motion of the ascending warm or descending cool masses throughout the atmosphere, while the horizontal movement of the shadow bands depends upon the direction of the wind and the bearing of the sun from the observer. In general, the motion of the shadow band on a horizontal surface can be expressed by simple trigonometric formulæ.

The fact that the atmosphere is a mixture of masses of hot and cold air whose movements in the vertical direction are compounded with those of the horizontal wind currents, gives rise to a number of phenomena that interest the meteorologist, among which I may enumerate the following:

1. The scintillation or twinkling of the stars, which is explicable as due to the refractions, dispersions, and occasional interferences of slender pencils of starlight.

2. The jumping and oscillation of the images of the stars and other celestial objects; this constitutes the "bad seeing" or "bad images" of the astronomers.

3. The extinction or absorption of starlight diminishes with increasing altitude of a star above the horizon and depends partly upon gaseous absorption, partly on the obstacles encountered, such as dust and particles of vapor haze and cloud, but also on the diffuse refraction and reflection of the pencils of light as they pass through numerous refracting surfaces in the atmosphere.

4. The extinction of sound as it traverses the atmosphere does not proceed according to the simple law of the inverse square of the distance, but much more rapidly. In fact, owing to the refraction of sound and the influence of the wind, it is quite possible for the sound to pass entirely over an observer and be heard a mile further on where the sound wave descends to the ground. These irregularities were investigated by Prof. Joseph Henry, on behalf of the Lighthouse Board of the United States, and by Prof. John Tyndall, on behalf of the Trinity House of London. Tyndall seems to have shown that in many cases the mixture of hot and cold masses of air renders the atmosphere as opaque to sound as the mixture of water and bubbles of air is opaque to light. The rapid extinction of sound is due to irregular refractions of sound waves in passing through many small regions of varying densities. Often, in fact, we need not many, but merely one or two changes of density. Thus, a cold wind penetrating a mass of warm air acts as a wall, reflecting and refracting the sound wave into directions entirely different from that which it originally had.

5. The numerous photographs of lightning flashes often show great variations in the width and character of different portions of a flash; sometimes the flash appears like a band or ribbon seen edgewise in one portion and frontwise in another. These features may in part be explicable as due to the irregular refractions in the air between the flash and the camera; in fact, if the flash suddenly heats the air in its track so as to produce an explosion, the irregularities of the refraction will be greatly accentuated.

6. We apparently meet with similar irregularities in the study of the sun. Thus, the instantaneous photographs of the whole sun taken by Janssen in 1877 usually show a few regions where the fine regular structure known as "rice grains" suddenly becomes blurred. These spots I have always attributed to the irregularities of the refraction of light in our own atmosphere and not to similar irregularities in the solar atmosphere, although such undoubtedly exist. The latter could only have an infinitesimal effect as seen from the earth and would possibly have a more decided effect near the edge than near the center of the sun's disk. In fact, the apparent rice grain structure may itself be in part due to such irregularities in the solar atmosphere. The suggestion that the blurs on the photographs may be due to optical imperfections in the lenses of the telescope, or any part of the photographic apparatus, was made but soon abandoned by Janssen himself.

Since the above was written the astronomers in the pure air of Arizona have investigated the origin of symmetrical bands of light in the diffraction images of stars in the large telescopes, and have attributed these bands to the refractions at wave surfaces in the upper atmosphere and resulting interferences. The forms and movements of the optical bands are supposed to indicate the conditions existing in the upper atmosphere, but this requires further investigation.

STORM WARNINGS ON THE OREGON COAST.

A remarkably severe storm passed over Astoria, Oreg., on Wednesday, May 23. In connection with this storm the Evening Telegram of Portland, Oreg., says:

> Notice of the coming of the gale was received at an early hour by Weather Bureau Observer Johnson, who wired the several lifeboat crews. They immediately started out and warned the fishermen to seek cover. It is believed that Mr. Johnson's warning reached the fishermen in time to prevent greater loss of life, although many perished in spite of it.

Capt. A. L. Hall, of the steamship *Walla Walla*, arrived at Seattle, Wash., May 25; he estimated the velocity of the wind at fully 90 miles per hour; it was a southeast gale with southwest squalls which made the sea very choppy.

This action of the Weather Bureau displayman in personally visiting and warning the fishermen is, of course, an every day occurrence throughout our coasts whenever storms threaten, but it is worth quoting, as illustrating the fact, that throughout the United States, from one extreme to the other, wherever the atmospheric elements threaten life or property, the officials of the Weather Bureau are also on hand to give prompt warning of the impending danger.

INDEX TO THE MONTHLY REPORTS OF THE CALIFORNIA SECTION.

In the May number of the report from California, Mr. McAdie publishes an index to the articles contained in the Climate and Crop Bulletins from January, 1897 to December, 1899, as compiled by Mr. H. E. Smith. This commendable enterprise on the part of Mr. McAdie has already borne good fruit by calling the attention of the Editor, and doubtless others, to articles that had been overlooked. A general index up to date would form an appropriate page in each of the annual volumes of the section reports.

In this connection it may be worth while for each section director to page his monthly numbers continuously during each year, and print a title page with contents and index for the annual volume.

CAPE NOME TEMPERATURES.

The Editor has for a long time been gathering and discussing the temperature records for Alaska, as far as these are accessible to him. He is, therefore, very glad to be able to quote the data for a new station at the gold fields of Cape Nome, latitude 64.5° N., longitude 165° W., as published in the May report of the California section. These observations were made by Mr. A. G. Blake, United States Deputy Surveyor, between 7 and 8 a. m., local time, from November 1, 1899, to March 16, 1900. This station was very much needed in order to fill up our study of the climate of the coast of Alaska. The older stations in its neighborhood were Port Clarence, Fort St. Michael, and Omilak.

The hourly corrections needed in order to reduce the monthly means of observations made at Cape Nome at 7:30 a. m., local time, to the mean of twenty-four hourly observations, have been deduced as follows:

January	+0.2	April	+0.8	July	+0.2	October	+1.5
February	+1.2	May	−0.2	August	+0.8	November	+0.8
March	+2.3	June	+0.3	September	+1.2	December	−1.2

These corrections are taken from small charts prepared for this purpose by Mr. H. B. Wren, under the Editor's directions.

The figures quoted from the California report are as follows:

Date.	1899.		1900.		
	November.	December.	January.	February.	March.
	°	°	°	°	°
1	10	18	0	18	8
2	10	−8	−3	18	0
3	.....	−5	0	15	12
4	23	22	−4	20	16
5	24	18	14	18	8
6	20	18	8	18	14
7	10	10	0	18	10
8	10	−5	−2	22	2
9	20	−8	−2	10	−12
10	20	−12	2	0	−12
11	4	8	12	24	0
12	10	12	4	30	−16
13	14	32	8	28	−16
14	16	22	−6	33	9
15	5	14	−16	26	7
16	0	20	−10	30	30
17	20	−10	−20	12	.....
18	20	−4	−27	10	.....
19	22	−18	−22	10	.....
20	18	−20	−34	4	.....
21	8	−22	−27	−8	.....
22	2	−30	−38	−4	.....
23	8	−26	−25	4	.....
24	2	−20	−28	10	.....
25	26	−13	−23	8	.....
26	26	−8	10	3	.....
27	14	0	12	2	.....
28	26	−3	18	12	.....
29	24	−12	26	.....	.....
30	22	−10	26	.....	.....
31	.....	3	16	.....	.....
Mean	+15.0	−1.2	−4.2	+14.0	.....
Corrected	+0.8	−0.2	+0.2	+1.2	.....
Corrected mean	+15.8	−1.4	−4.5	+15.2	.....

THE WEATHER OF THE MONTH.

By ALFRED J. HENRY, Professor of Meteorology.

Atmospheric pressure was considerably lower than usual over practically the whole country. High temperatures prevailed, especially in the upper Missouri Valley, where maximum values from 100° to 105° were registered. The monthly mean temperature over a very large area was much above the seasonal average. The region of abnormally high temperatures extended from the lower Lakes in a continuous line westward to near the Pacific coast and southward to about the thirty-sixth parallel of latitude. In parts of this area the rainfall was scant, and the staple crops suffered accordingly; in other portions the rainfall was sufficient for all needs. General rains fell in California during the first part of the month; during the latter half of the month there were no rains to speak of. Elsewhere on the Pacific coast the rainfall was from 1 to 2 inches above the normal.

The month was rather free from destructive local windstorms and thunderstorms.

PRESSURE.

The distribution of monthly mean pressure is graphically shown on Chart IV, and the numerical values are given in Tables I and X.

Mean pressure was highest, 30.05 inches, on the Pacific coast, and lowest, 29.80, on the northeastern Rocky Mountain slope. It was generally below normal throughout the whole country. As compared with the preceding month, there was a marked decrease along the northern boundary from the lower Lakes to Montana. In general, low area storms moved across the country in the northern track, although several cases of lows moving eastwardly simultaneously in both the northern and southern tracks were noted. Generally, however, these latter joined at some point in the Lake region.

TEMPERATURE OF THE AIR.

The distribution of monthly mean surface temperature, as deduced from the records of about 1,000 stations, is shown on Chart VI.

Temperature was markedly above the normal in all regions except New England, the interior of Texas, and the coast line of Washington, and part of Oregon. The greatest excess was noted in the upper Missouri Valley, where a daily departure of 10° above the normal was registered. The average daily departure diminished from the upper Missouri Valley rather uniformly in all directions. Very high temperatures were registered in the Dakotas, Montana, and the Red River Valley—higher, in fact, than were recorded elsewhere in the United States, except in Arizona and the desert regions of southern California.

Temperatures below freezing occurred throughout northern New England, the plateau region of New York State, western Pennsylvania, West Virginia, and quite generally throughout the northern part of the Lake region, Minnesota, and North Dakota.

In Canada.—Professor Stupart says:

The mean temperature of the month exceeded the normal in all parts of the Dominion lying west of a line running approximately northward from the Bay of Quinte to Moose Factory, and was below normal in districts to the eastward, including the Ottawa Valley and the whole of Quebec and the Maritime Provinces. The greatest positive departures, amounting to between 6° and 8°, occurred in Manitoba and Assiniboia, and the largest negative departures in parts of Quebec

and New Brunswick, where 3° below normal was recorded at many stations. In British Columbia generally the normal appears to have been exceeded by from 1° to 2°.

Average temperatures and departures from the normal.

Districts.	Number of stations.	Average temperatures for the current month.	Departures for the current month.	Accumulated departures since January 1.	Average departures since January 1.
		°	°	°	°
New England	10	52.7	− 1.2	+ 1.5	+ 0.3
Middle Atlantic	12	62.3	+ 0.8	+ 0.4	+ 0.1
South Atlantic	10	70.4	+ 0.2	− 4.4	− 0.9
Florida Peninsula	7	75.9	+ 0.1	− 6.6	− 1.3
East Gulf	7	73.4	+ 0.8	− 7.1	− 1.4
West Gulf	7	73.2	+ 0.6	+ 0.1	0.0
Ohio Valley and Tennessee	12	66.8	+ 1.8	− 2.9	− 0.6
Lower Lake	8	58.5	+ 1.7	− 2.0	− 0.4
Upper Lake	9	54.7	+ 3.4	+ 6.7	+ 1.3
North Dakota	8	59.8	+ 6.4	+26.3	+ 5.3
Upper Mississippi Valley	11	64.7	+ 3.3	+ 5.6	+ 1.1
Missouri Valley	10	65.1	+ 5.0	+15.1	+ 3.0
Northern Slope	7	59.0	+ 5.7	+24.1	+ 4.8
Middle Slope	6	64.2	+ 2.2	+10.2	+ 2.0
Southern Slope	6	66.8	− 1.9	+ 1.7	+ 0.3
Southern Plateau	15	66.4	+ 1.6	+11.0	+ 2.2
Middle Plateau	9	58.1	+ 2.2	+19.8	+ 3.9
Northern Plateau	10	55.2	+ 0.8	+18.0	+ 3.6
North Pacific	9	54.0	− 0.4	+12.5	+ 2.5
Middle Pacific	5	60.7	+ 0.8	+ 7.3	+ 1.5
South Pacific	4	63.7	+ 1.4	+ 9.5	+ 1.9

PRECIPITATION.

In general precipitation was below the average. It was exactly average in New England, slightly above in Florida, the southern slope, the southern Plateau, the northern Plateau, and the north and middle Pacific coast, and very much above the average on the south Pacific coast. The regions of greatest deficiency, as has been stated before, were in North Dakota and elsewhere in the upper Missouri Valley. Storms advancing from the northwest during the month gave practically no rainfall until the eastern boundary of Minnesota was reached. Likewise the rain area accompanying southwest storms did not extend as far north as Minnesota and North Dakota.

There was also a marked deficiency of rain in Mississippi, northern Alabama, eastern Tennessee, western Pennsylvania, and New York, and in central and southwestern Missouri.

Average precipitation and departures from the normal.

Districts.	Number of stations.	Average.		Departure.	
		Current month.	Percentage of normal.	Current month.	Accumulated since Jan. 1.
		Inches.		*Inches.*	*Inches.*
New England	10	3.53	100	0.0	+2.1
Middle Atlantic	12	2.78	76	−0.9	−2.6
South Atlantic	10	2.96	75	−1.0	+0.3
Florida Peninsula	7	4.09	108	+0.3	+6.8
East Gulf	7	3.58	84	−0.7	+3.2
West Gulf	7	3.98	91	−0.4	+0.5
Ohio Valley and Tennessee	12	3.02	79	−0.8	−5.9
Lower Lake	8	1.79	53	−1.6	−0.8
Upper Lake	9	2.27	67	−1.1	−2.8
North Dakota	8	0.71	31	−1.6	−3.3
Upper Mississippi Valley	11	3.60	88	−0.5	−2.0
Missouri Valley	10	2.16	50	−2.1	−2.5
Northern Slope	7	1.00	42	−1.4	+0.2
Middle Slope	6	2.80	78	−0.8	+1.1
Southern Slope	6	3.51	109	+0.3	+2.4
Southern Plateau	15	0.63	100	0.0	−1.0
Middle Plateau	9	0.81	73	−0.3	−1.8
Northern Plateau	10	2.35	134	+0.6	−0.6
North Pacific	9	4.37	147	+1.4	−2.3
Middle Pacific	5	1.62	107	+0.1	−4.3
South Pacific	4	1.65	471	+1.3	−4.1

In Canada.—Prof. R. F. Stupart says:

The rainfall exceeded the normal in British Columbia and in the Maritime Provinces, but was deficient in all other parts of the Dominion, except in the northern districts of Ontario, Muskoka, Parry Sound, and Nipissing, where it was either equal to, or somewhat in excess of the average. The most marked deficiency occurred in the counties bordering on Lake Ontario, between Prince Edward and Toronto, where the total fall was less than an inch; and again in Manitoba, where the aggregate amount recorded during the month was very generally but a small fraction of an inch.

Light snows fell in northern New England and quite generally throughout New York State during the early part of the month. There were also traces of snowfall in southeastern Michigan and throughout northern Ohio. Snow also fell at the more elevated stations in the Rocky Mountain and Plateau regions. The number of stations reporting snow, however, is so small that the chart of total monthly snowfall is not published.

HAIL

The following are the dates on which hail fell in the respective States:

Alabama, 8, 23, 24. Arizona, 5, 11, 20. Arkansas, 2, 6, 8. California, 10. Colorado, 5, 6, 9, 10, 11, 14, 15, 18, 19, 20, 21, 24, 25, 29, 30. Delaware, 3. Florida, 22. Georgia, 2, 20. Idaho, 1, 5, 6, 10, 11, 16, 22, 24. Illinois, 2, 6, 7, 8, 26, 29. Indiana, 7, 8, 17, 27. Indian Territory, 2, 3, 5, 28. Iowa, 4, 6, 7, 14, 28, 31. Kansas, 2, 3, 4, 6, 7, 14, 15, 22, 25, 30. Kentucky, 5, 6, 8, 28. Louisiana, 8, 20, 28, 29. Maryland, 9. Michigan, 4, 7, 13, 14, 16, 26, 27, 28, 29, 30. Minnesota, 12, 13, 23, 27. Mississippi, 8, 19. Missouri, 2, 4, 5, 6, 7, 14, 26, 28, 30. Montana, 6, 11, 16, 19, 24, 27, 31. Nebraska, 5, 6, 7, 12, 13, 18, 23, 24, 25, 29, 30, 31. Nevada, 11, 16, 19. New Jersey, 18. New Mexico, 2, 6, 13, 14, 18, 19, 20, 24, 25, 26, 28, 30, 31. New York, 3, 4, 5, 15, 17, 19, 20, 21, 22. North Carolina, 2, 5, 9. North Dakota, 7, 29. Ohio, 4, 8, 17, 18, 27. Oklahoma, 2, 6, 22, 23, 28. Oregon, 7, 8, 9, 16, 23, 25, 26. Pennsylvania, 3, 8, 18, 20. South Dakota, 31. Tennessee, 2, 3, 8, 25, 28, 30. Texas, 1, 2, 3, 6, 7, 8, 13, 24, 27, 28, 30. Utah, 1, 5, 11, 12. Virginia, 1, 2, 3. Washington, 3, 5, 13, 15, 19, 21, 23, 26, 27, 30. West Virginia, 8. Wisconsin, 8, 14, 16, 26, 27. Wyoming, 5, 6, 14, 18, 21.

SLEET.

The following are the dates on which sleet fell in the respective States:

California, 4. Colorado, 1, 2, 6, 7, 9, 11, 14, 15, 23, 24, 28, 29, 30. Montana, 27. Nevada, 5. New York, 10. Ohio, 4. Utah, 5. Washington, 26.

SUNSHINE AND CLOUDINESS.

The distribution of sunshine is graphically shown on Chart VII, and the numerical values of average daylight cloudiness, both for individual stations and by geographical districts, appear in Table I.

Average cloudiness and departures from the normal.

Districts.	Average.	Departure from the normal.	Districts.	Average.	Departure from the normal.
New England	5.5	0.0	Missouri Valley	4.6	−0.8
Middle Atlantic	4.8	−0.4	Northern Slope	4.6	−0.8
South Atlantic	3.6	−0.8	Middle Slope	4.8	0.0
Florida Peninsula	6.0	+1.5	Southern Slope	4.4	−0.1
East Gulf	3.9	−0.4	Southern Plateau	2.3	+0.1
West Gulf	5.0	+0.1	Middle Plateau	4.0	−0.1
Ohio Valley and Tennessee	4.7	−0.4	Northern Plateau	5.5	−0.1
Lower Lake	5.5	+0.3	North Pacific Coast	6.7	+0.8
Upper Lake	5.9	+0.4	Middle Pacific Coast	3.9	−0.3
North Dakota	3.7	−1.6	South Pacific Coast	3.1	−1.1
Upper Mississippi	4.9	−0.3			

HUMIDITY.

Average relative humidity and departures from the normal.

Districts.	Average.	Departure from the normal.	Districts.	Average.	Departure from the normal.
	%			%	
New England	74	− 4	Missouri Valley	62	− 3
Middle Atlantic	64	− 7	Northern Slope	57	0
South Atlantic	71	− 3	Middle Slope	66	+ 6
Florida Peninsula	80	+ 3	Southern Slope	68	+10
East Gulf	68	− 4	Southern Plateau	31	+ 1
West Gulf	77	+ 4	Middle Plateau	37	− 8
Ohio Valley and Tennessee	62	− 6	Northern Plateau	50	+ 1
Lower Lake	68	− 2	North Pacific Coast	76	− 2
Upper Lake	68	− 4	Middle Pacific Coast	67	− 5
North Dakota	55	− 9	South Pacific Coast	69	+ 1
Upper Mississippi	67	0			

ATMOSPHERIC ELECTRICITY.

Numerical statistics relative to auroras and thunderstorms are given in Table VII, which shows the number of stations from which meteorological reports were received, and the number of such stations reporting thunderstorms (T) and auroras (A) in each State and on each day of the month, respectively.

Thunderstorms.—Reports of 3,855 thunderstorms were received during the current month as against 5,305 in 1899 and 2,617 during the preceding month.

The dates on which the number of reports of thunderstorms for the whole country were most numerous were: 8th, 300; 7th, 225; 30th, 217; 28th, 215; 18th, 204.

Reports were most numerous from: Illinois, 297; Missouri, 270; Nebraska, 185; Ohio, 182.

Auroras.—The evenings on which bright moonlight must have interfered with observations of faint auroras are assumed to be the four preceding and following the date of full moon, viz, 9th to 17th.

In Canada.—Auroras were reported as follows: Father Point, 4th, 18th, 29th; Montreal, 5th; Toronto, 4th; Minnedosa, 1st, 2d, 4th; Qu'Appelle, 4th; Medicine Hat, 2d, 4th; Battleford, 1st, 2d, 5th, 26th.

Thunderstorms were reported as follows: Halifax, 9th, 15th; Grand Manan, 14th, 15th; Yarmouth, 9th, 15th, 18th, 19th; Father Point, 31st; Quebec, 14th; Montreal, 15th, 19th; Bissett, 13th; Kingston, 13th, 14th, 15th; Toronto, 8th, 17th, 30th; White River, 14th, 30th; Port Stanley, 8th, 12th, 15th, 27th, 31st; Saugeen, 8th, 27th, 28th; Parry Sound, 14th; Port Arthur, 14th; Minnedosa, 22d, 29th; Qu'Appelle, 10th; Medicine Hat, 10th, 27th; Swift Current, 5th, 6th, 11th, 12th, 13th, 19th, 20th; Calgary, 11th; Banff, 10th; Prince Albert, 21st, 27th; Battleford, 6th, 7th, 11th, 21st, 22d; Victoria, 3d; Barkerville, 8th, 10th.

WIND.

The maximum wind velocity at each Weather Bureau station for a period of five minutes is given in Table I, which also gives the altitude of Weather Bureau anemometers above ground.

Following are the velocities of 50 miles and over per hour registered during the month:

Maximum wind velocities.

Stations.	Date.	Velocity.	Direction.	Stations.	Date.	Velocity.	Direction.
Atlanta, Ga	3	56	nw.	Mount Tamalpais, Cal.	22	62	w.
Block Island, R. I.	19	52	ne.	Do.	23	58	nw.
Cape Henry, Va.	4	52	nw.	Do.	24	58	nw.
Do.	24	50	n.	Do.	25	78	nw.
Eastport, Me.	19	53	e.	Do.	27	62	nw.
Huron, S. Dak.	31	50	se.	Do.	28	59	nw.
Lander, Wyo.	11	52	sw.	Do.	29	53	nw.
Mount Tamalpais, Cal.	10	54	nw.	Do.	30	55	nw.
Do.	11	71	nw.	New York, N. Y.	9	52	nw.
Do.	12	54	nw.	Do.	10	50	nw.
Do.	15	81	nw.	Do.	21	50	nw.
Do.	16	60	nw.	San Antonio, Tex.	29	50	w.
Do.	18	74	nw.	Sioux City, Iowa	31	53	nw.
Do.	19	59	w.	Williston, N. Dak.	29	50	w.
Do.	21	57	w.				

DESCRIPTION OF TABLES AND CHARTS.

By ALFRED J. HENRY, Professor of Meteorology.

Table I gives, for about 145 Weather Bureau stations making two observations daily and for about 25 others making only one observation, the data ordinarily needed for climatological studies, viz, the monthly mean pressure, the monthly means and extremes of temperature, the average conditions as to moisture, cloudiness, movement of the wind, and the departures from normals in the case of pressure, temperature, and precipitation, the total depth of snowfall, and the mean wet-bulb temperatures. The altitudes of the instruments above ground are also given.

Table II gives, for about 2,700 stations occupied by voluntary observers, the highest maximum and the lowest minimum temperatures, the mean temperature deduced from the average of all the daily maxima and minima, or other readings, as indicated by the numeral following the name of the station; the total monthly precipitation, and the total depth in inches of any snow that may have fallen. When the spaces in the snow column are left blank it indicates that no snow has fallen, but when it is possible that there may have been snow of which no record has been made, that fact is indicated by leaders, thus (....).

Table III gives, for 44 stations selected out of 144 that maintain continuous records, the mean hourly temperatures deduced from the Richard thermographs described and figured in the Report of the Chief of the Weather Bureau, 1891–92, p. 29.

Table IV gives, for 44 stations selected out of 142 that maintain continuous records, the mean hourly pressures as automatically registered by Richard barographs, except for Washington, D. C., where Foreman's barograph is in use. Both instruments are described in the Report of the Chief of the Weather Bureau, 1891–92, pp. 26 and 30.

Table V gives, for about 157 stations, the arithmetical means of the hourly movements of the wind ending with the respective hours, as registered automatically by the Robinson anemometer, in conjunction with an electrical recording mechanism, described and illustrated in the Report of the Chief of the Weather Bureau, 1891–92, p. 19.

Table VI gives, for all stations that make observations at 8 a. m. and 8 p. m., the four component directions and the resultant directions based on these two observations only and without considering the velocity of the wind The total movement for the whole month, as read from the dial of the Robinson anemometer, is given for each station in Table I. By adding the four components for the stations comprised in

any geographical division the average resultant direction for that division can be obtained.

Table VII gives the total number of stations in each State from which meteorological reports of any kind have been received, and the number of such stations reporting thunderstorms (T) and auroras (A) on each day of the current month.

Table VIII gives, for about 95 stations, the average hourly sunshine (in percentages) as derived from the automatic records made by two essentially different types of instruments, designated, respectively, the thermometric recorder and the photographic recorder. The kind of instrument used at each station is indicated in the table by the letter T or P in the column following the name of the station.

Table IX gives a record of rains whose intensity at some period of the storm's continuance equaled or exceeded the following rates:

Duration, minutes..	5	10	15	20	25	30	35	40	45	50	60	80	100	120
Rates pr. hr. (ins.)..	3.00	1.80	1.40	1.20	1.08	1.00	0.94	0.90	0.86	0.84	0.75	0.60	0.54	0.50

In the northern part of the United States, especially in the colder months of the year, rains of the intensities shown in the above table seldom occur. In all cases where no storm of sufficient intensity to entitle it to a place in the full table has occurred, the greatest rainfall of any single storm has been given, also the greatest hourly fall during that storm.

Table X gives, for about 30 stations furnished by the Canadian Meteorological Service, Prof. R. F. Stupart, director, the means of pressure and temperature, total precipitation and depth of snowfall, and the respective departures from normal values, except in the case of snowfall.

Table XI gives the heights of rivers referred to zeros of gages.

NOTES EXPLANATORY OF THE CHARTS.

Chart I, tracks of centers of high areas, and Chart II, tracks of centers of low areas, are constructed in the same way. The roman numerals show number and chronological order of highs (Chart I) and lows (Chart II). The figures within the circles show the days of the month; the letters *a* and *p* indicate, respectively, the 8 a. m. and 8 p. m., seventy-fifth meridian time, observations. Within each circle is also given (Chart I) the highest barometric reading and (Chart II) the lowest pressure at or near the center at that time.

Chart III.—Total precipitation. The scale of shades showing the depth of rainfall is given on the chart itself. For isolated stations the rainfall is given in inches and tenths, when appreciable; otherwise, a "trace" is indicated by a capital T, and no rain at all, by 0.0.

Chart IV.—Sea-level pressure, temperature, and resultant surface winds. The wind directions on this Chart are the computed resultants of observations at 8 a. m. and 8 p. m., daily; the resultant duration is shown by figures attached to each arrow. The temperatures are the means of daily maxima and minima and are reduced to sea level. The pressures are the means of 8 a. m. and 8 p. m. observations, daily, and are reduced to sea level and to standard gravity. The reduction for 30 inches of the mercurial barometer, as formerly shown by the marginal figures for each degree of latitude, has already been applied.

Chart V.—Hydrographs for seven principal rivers of the United States.

Chart VI.—Surface temperatures; maximum, minimum, and mean. Lines of equal monthly mean temperature in red; lines of equal maximum temperature in black; and lines of equal minimum temperature (dotted) also in black.

Chart VII.—Percentage of sunshine. The average cloudiness at each Weather Bureau station is determined by numerous personal observations during the day. The difference between the observed cloudiness and 100, it is assumed, represents the percentage of sunshine, and the values thus obtained have been used in preparing Chart VII.

Chart VIII.—Sea-level pressure, temperature, and resultant surface winds for West Indian stations, constructed as for Chart IV.

TABLE I.—*Climatological data for Weather Bureau Stations, May, 1900.*

Stations.	Elevation of instruments.			Pressure, in inches.			Temperature of the air, in degrees Fahrenheit.										Mean wet thermometer.	Mean temperature of the dew-point.	Mean relative humidity, per cent.	Precipitation, in inches.			Wind.					Clear days.	Partly cloudy days.	Cloudy days.	Average cloudiness, tenths.	Total snowfall.
	Barometer above sea level, feet.	Thermometers above ground.	Anemometer above ground.	Mean actual, 8 a. m.+8 p. m.+2.	Mean reduced.	Departure from normal.	Mean max. + mean min.÷2.	Departure from normal.	Maximum.	Date.	Mean maximum.	Minimum.	Date.	Mean minimum.	Greatest daily range.					Total.	Departure from normal.	Days with .01, or more.	Total movement, miles.	Prevailing direction.	Maximum velocity. Miles per hour.	Maximum velocity. Direction.	Maximum velocity. Date.					
New England.																															
Eastport	76	69	74	29.84	29.98	— .03	52.7	— 1.2											74	3 53	0.0								5.5		
Portland, Me.	103	81	89	29.82	29.92	— .05	46.6	— 0.9	85	30	53	32	10	40	33	48	40	80		5.18	+ 1.5	12	7,365	w.	53	e.	19	12	8	11	5.8	
Northfield	876	15	65	29.00	29.94	— .03	49.8	— 3.8	88	15	58	30	11	41	46	44	38	67		4.09	+ 0.5	13	5,465	nw.	26	nw.	5	9	13	9	5.6	T.
Boston	125	115	131	29.81	29.95	— .02	50.2	— 3.5	88	14	63	22	11	37	45	46	40	70		1.60	— 1.5	18	7,241	s.	44	nw.	15	4	13	14	6.7	
Nantucket	12	43	54	29.94	29.95	— .02	52.4	— 0.1	75	15	58	37	10	47	21	49	46	82		1.65	— 1.9	13	8,736	sw.	31	ne.	28	5	15	11	6.5	
Woods Hole	22	11	57	29.98	29.95	— .03	53.2	— 0.3	74	15	59	36	10	47	24	49	46	80		3.63	+ 0.3	11	10,167	sw.	48	nw.	15	9	12	10	5.7	
Vineyard Haven		20	55				55.2	— 1.9	86	15	64	36	10	46	33					3.17	— 0.3	10	7,694	sw.	38	ne.	25	11	12	8	5.3	
Block Island	26	11	70	29.92	29.95	— .04	52.8	+ 0.4	80	15	59	31	11	47	26	49	46	80		3.43	— 0.3	13	12,892	sw.	52	ne.	19	15	8	8	4.1	
Narragansett		10					53.8	— 0.8	80	15	63	28	11	45	29					4.16	+ 0.1	7		s.				17	4	10		
New Haven	106	117	140	29.84	29.96	— .03	57.5	— 0.1	92	15	68	33	10	47	38	51	44	64		3.30	— 0.4	10	6,750	sw.	26	ne.	23	16	9	6	3.7	T.
Mid. Allan. States.							62 3	+ 0 8											64	2 78	— 0 9								4.3		
Albany	97	84	113	29.85	29.96	— .01	58.0	— 1.3	93	14	70	31	11	46	36	50	43	60		1.86	— 1.8	10	5,704	s.	29	s.	17	12	13	6	5.1	T.
Binghamton	875	79	90				57.3	+ 0.5	89	14	70	30	6	45	43					0.53	— 3.6	7	4,831	nw.	26	n.	10	10	11	10	5.4	
New York	314	108	346	29.63	29.96	— .03	60.8	+ 1.3	89	15	70	38	10	52	31	52	46	62		4.05	+ 0.9	15	10,287	nw.	52	nw.	9	12	10	9	4.8	
Harrisburg	374	94	104				62.6	+ 2.4	92	15	73	38	5	52	37					1.33	— 3.4	6	5,431	w.	30	w.	8	13	5	13	5.3	
Philadelphia	117	168	184	29.85	29 97	— .04	63.0	+ 1.0	93	15	74	40	10	53	32	55	49	68		4.11	+ 0.9	9	7,572	sw.	30	ne.	19	14	7	10	4.9	
Atlantic City	52	68	76	29.92	29.97	— .03	58.7	+ 1.5	90	14	66	37	10	51	34	53	50	78		3.23	+ 0.5	10	9,145	sw.	42	ne.	26	13	13	5	4.7	
Cape May	17	47	51	29.98	30.00	.00	59 4	+ 0.8	87	14	66	41	10	53	27	54				3.55	+ 0.8	12	6,375	s.				12	10	9	5.0	
Baltimore	123	68	82	29.85	29.98	— .02	65.2	+ 1.0	94	15	76	40	4	55	35	56	50	61		1.00	— 2.8	7	4,101	w.	21	e.	28	9	10	12	5.8	
Washington	112	59	76	29.86	29.98	— .03	64.4	+ 0.5	94	15	77	38	10	52	38	56	49	60		4.02	+ 0.1	7	4,914	nw.	28	nw.	8	17	5	9	4.4	
Cape Henry		5	34				65.5	+ 1.0	90	8	74	46	11	57	36					3.39	— 0.7	12	10,583	s.	52	nw.	4	12	11	8	4.7	
Lynchburg	681	83	88	29.27	29.98	— .01	66.4	+ 0.4	93	15	79	43	4	54	37	57	50	59		4.07	+ 0.2	8	3,025	nw.	22	nw.	4	16	8	7	4.1	
Norfolk	91	102	111	29.90	30.00	.00	66.8	+ 0.4	94	16	77	46	4	57	31	59	54	69		2.74	— 1.5	13	7,667	s.	44	nw.	9	17	8	6	4.0	
Richmond	144	98	105				67.0		94	16	79	43	4	55	35					2.20		8	5,165	se.	26	nw.	9	14	8	9	4.2	
S. Atlantic States.							70.4	+ 0.2											71	2.96	— 1.0								4.0		
Charlotte	773	68	76	29.19	30.00	+ .01	69.0	+ 0.6	91	14	80	44	10	58	32	59	51	59		2.11	— 2.2	6	4,969	sw.	27	sw.	9	14	8	9	4.5	
Hatteras	11	17	36	30.00	30.01	+ .01	67.0	+ 0.6	78	•	72	50	•	62	18	63	60	81		4.24	— 0.4	8	10,609	sw.	47	n.	9	18	9	4	3.6	
Kittyhawk	8	12	30				65.4	— 0.6	86	•	74	40	10	57	30					4.41	+ 0.7	10	11,033	w.				23	2	6	2.6	
Raleigh	376	93	101	29.62	30.01	+ .02	69.0	+ 1.5	93	14	81	46	10	57	32	60	54	64		3.12	— 1.3	10	4,590	sw.	31	sw.	18	16	12	3	3.4	
Wilmington	78	82	90	29.94	30.02	+ .03	70.0	+ 0.3	97	28	79	52	27	61	31	63	60	76		3.32	— 0.8	7	6,230	sw.	32	w.	9	19	8	4	3.1	
Charleston	48	14	92	29.99	30.04	+ .04	73.8	+ 1.4	88	20	80	59	11	67	21	65	62	70		1.38	— 2.6	9	7,808	sw.	31	n.	10	15	12	4	3.7	
Columbia		5					71.6	— 0.4	91	13	84	47	11	59	30					3.50	— 0.4	5		sw.				20	6	5	3.7	
Augusta	180	89	108	29.82	30.01	+ .04	71.0	— 1.0	88	13	82	48	11	61	39	62	57	65		2.01	— 1.4	8	4,462	s.	27	ne.	1	20	5	6	3.1	
Savannah	65	79	89	29.96	30.02	+ .01	73.0	+ 0.1	87	19	81	57	11	65	24	66	63	78		2.65	— 0.3	8	5,486	sw.	25	w.	19	15	14	2	3.7	
Jacksonville	26	11	70	29.92	29.95	— .04	74.6	— 0.3	90	20	82	59	5	67	21	67	64	75		3.17	— 0.3	10	7,694	sw.	38	ne.	25	11	12	8	5.3	
Florida Peninsula.							76.2	— 0.3											80	3.43	— 0.3	13	12,892	sw.	52	ne.	19	15	8	8	4.1	
Jupiter	28	13	30	29.95	29.98	+ .01	76.7	+ 1.0	88	20	82	64	1	72	16	71	70	82		7.43	+ 1.6	15	7,641	e.	28	e.	15	6	12	13	6.2	
Key West	22	43	50	29.95	29.97	+ .01	77.4	— 2.0	84	22	81	68	14	74	14	73	71	81		9.55	+ 6.4	12	7,657	e.	36	ne.	14	9	10	12	5.7	
Tampa	34	60	67	29.95	29.99	+ .01	76.2	+ 0.2	89	8	84	61	5	68	23	69	66	76		2.33	— 0.6	6	5,353	ne.	24	s.	1	6	13	12	6.1	
East Gulf States.							73.4	+ 0.8											63	3.58	— 0.7								3.9		
Atlanta	1,174	139	156	28.79	30.00	— .02	69.8	+ 1.0	88	13	80	45	4	60	27	59	51	59		2.94	— 0.2	7	7,038	sw.	56	nw.	3	15	8	8	4.2	
Macon	370	93	99				71.0		89	13	82	46	11	60	35					2.97		7	4,314	se.	26	nw.	9	14	16	1	3.0	
Pensacola	56	78	90				74.6	+ 1.1	88	2	81	59	5	68	21					1.01	— 2.3	5	7,390	ne.	36	nw.	17	20	7	4	3.6	
Mobile	57	88	96	29.93	29.99	+ .02	74.4	+ 0.8	88	19	82	58	5	66	22	67	64	74		10.14	+ 5.8	9	6,141	s.	40	se.	17	17	8	6	4.2	
Montgomery	223	100	112	29.75	29.98	— .01	73.3	+ 0.5	89	16	84	52	11	63	30	64	58	62		2.69	— 1.4	4	4,739	se.	24	s.	31	20	6	5	3.3	
Meridian	375	84	93				71.0	+ 0.6	88	29	82	46	11	60	37					1.61	— 4.3	8	4,028	s.	21	w.	19	11	16	4	4.1	
Vicksburg	347	65	73	29.69	29.95	— .02	72.8	+ 0.2	90	28	83	53	4	63	28	64	59	67		3.45	— 1.5	7	4,589	s.	24	w.	22	14	10	7	4.5	
New Orleans	51	112	120	29.92	29.98	+ .03	75.6	+ 1.0	88	26	83	62	4	68	18	68	66	76		2.91	— 2 0	7	5,574	se.	26	s.	7	13	12	6	4.4	
Port Eads		27					75.7	+ 1.1	86	•	82	56	5	69	24					3.85	+ 0.6	7		se.				15	9	7		
West Gulf States.							73.2	+ 0.6											77	3.98	— 0.4								5.0		
Shreveport	349	77	84	29.70	29.96	+ .01	73.2	+ 0.1	93	31	83	56	4	64	26	65	61	73		3.46	— 0.7	5	4,687	se.	27	sw.	3	7	9	15	5.8	
Fort Smith	457	74	82	29.46	29.94	+ .03	69.2	+ 1.0	88	25	79	45	4	60	37	62	58	72		3.92	— 0.8	15	4,710	e.	33	ne.	2	8	8	15	6.0	
Little Rock	357	93	100	29.59	29.97	+ .02	70.2	+ 0.9	88	25	80	44	4	60	36	62	58	71		4.11	— 1.6	9	4,975	s.	38	w.	7	14	14	3	4.0	
Corpus Christi	18	42	50	29.90	29.92	— .01	76.4	+ 1.0	89	31	81	61	15	72	18	72	70	83		2.74	— 0.5	6	10,235	se.	45	n.	22	14	10	7	4.3	
Fort Worth	670	106	114				71.6		91	24	81	52	4	62	29					6.58		12	7,842	s.	38	se.	14	11	15	5	4.5	
Galveston	54	84	88	29.87	29.92	— .02	76.2	+ 0.4	87	2	80	64	8	72	15	71	69	81		4.53	+ 0.7	7	6,319	se.	40	nw.	7	10	14	7	5.1	
Palestine	510	54	61	29.42	29.96	+ .01	72.8	+ 1.5	89	4	82	54	4	63	35	66	63	76		4.63	— 1.2	8	4,837	s.	28	n.	3	16	5	10	4.9	
San Antonio	701	96	104	29.20	29.92	+ .01	74.2	— 0.7	93	18	84	56	4	64	27	67	65	80		4.47	+ 1.2	8	5,018	se.	70	w.	7	9	14	8	5.2	
Ohio Val. & Tenn.							66.3	+ 1.3											62	3.02	— 0 8								4.7		
Chattanooga	762	106	112	29.22	30 02	+ .03	68.4	+ 0.7	89	14	80	44	11	57	37	58	51	60		1.41	— 2.5	9	4,760	sw.	32	w.	3	12	14	5	4.4	
Knoxville	1,004	10	88	28.96	30.01	.00	67.8	+ 1.6	91	16	80	39	4	53	38	58	51	61		1.72	— 2.2	9	5,109	sw.	40	nw.	25	20	7	4	3.1	
Memphis	397	140	154	29.56	29.98	+ .02	70.6	+ 0.4	88	15	79	49	10	62	25	61	55	62		3.23	— 1.3	9	6,850	s.	33	sw.	16	9	12	10	5.3	
Nashville	546	128	134	29.43	30.00	+ .03	68.6	+ 0.3	90	15	80	42	4	58	38	59	53	61		1.86	— 1.7	7	4,752	s.	25	se.	30	13	7	11	4.9	
Lexington	989	75	102				65.6	+ 2.0	91	16	76	36	4	55	30					3.54	0.0	13	6,080	sw.	31	sw.	8	15	9	7	4.2	
Louisville	525	114	136	29.43	29.99	+ .02	67.4	+ 1.3	92	16	78	41	4	56	32	59	53	67		5.58	+ 1.9	11	5,489	sw.	34	nw.	8	13	7	11	4.9	
Evansville	434	72	82				68.0		90	16	78	41	10	58	29					3.59		12	4,902	s.	32	sw.	8	17	7	7	3.8	
Indianapolis	822	154	164	29.11	29.97	— .01	65.6	+ 2.4	90	16	75	38	10	56	30	56	49	61		6.14	+ 2.0	14	7,196	sw.	38	sw.	8	7	13	11	5.7	
Cincinnati	628	152	157	29.32	29.99	+ .02	66.1	+ 1.4	90	16	76	40	4	56	29	58	53	67		3.94	+ 0.5	12	5,113	sw.	38	w.	8	12	8	11	5.1	
Columbus	824	87	100	29.11	29.98	+ .01	65.4	+ 3.4	92	17	77	34	4	54	34	55	47	59		1.82	— 2.4	8	5,596	sw.	32	sw.	8	12	10	9	4.8	
Pittsburg	842	116	123	29.07	29.96	— .03	64.8	+ 2.6	92	16	76	33	4	54	35	54	47	58		1.34	— 2.1	11	4,718	nw.	30	nw.	4	11	13	7	4.6	
Parkersburg	638	77	84	29.33	30.01	+ .03	65.0	+ 3.5	92	16	78	31	4	52	36	56	50	64		2.64	— 1.3	9	3,856	s.	24	sw.	8	14	9	8	4.8	
Elkins	1,940	41	50				58.4		90	16	73	25	4	44	45					2.51		11	3,342	n.	38	w.	8	10	11	10	5.3	
Lower Lake Region.							58.5	+ 1.7											63	1.79	— 1.6								5.5		
Buffalo	767	178	206	29.13	29.96	— .01	55.0	+ 1.0	79	24	63	32	5	47	34	49	45	75		1.22	— 2.2	11	9,223	sw.	42	w.	8	3	22	6	6.4	1.4
Oswego	335	76	87	29.58	29.95	— .04	54.1	— 0.1	84	14	64	31	7	44	42	48	43	70		1.24	— 1.6	6	6,790	se.	26	n.	9	10	11	10	5.1	T.
Rochester	523	81	90	29.39	29.95	— .02	58.3	+ 2.0	85	14	69	32	5	48	38	50	43	62		1.31	— 2.0	8	5,662	sw.	29	sw.	14	12	15	4	4.5	T.
Erie	713	92	102	29.20	29.96	— .01	57.8	+ 1.1	81	15	66	33	5	49	33	51	46	68		1.48	— 2.4	12	7,273	w.	34	w.	8	7	17	7	5.3	T.
Cleveland	762	190	201	29.15	29 96	— .03	59.6	+ 1.9	86	13	68	34	10	52	33	54	48	68		1.26	— 2.4	10	9,476	se.	48	w.	8	9	17	5	5.1	
Sandusky	629	62	70	29.29	29.96	— .03	61.3	+ 2.8	89	14	70	36	4	53	30	53	47	63		2.23	— 1.2	12	5,993	sw.	27	sw.	8	4	6	21	7.2	
Toledo	628	123	128	29.29	29.96	— .01	61.6	+ 2.2	88	15	71	36	4	52	30	54	48	64		2.48	— 0.9	13	7,186	sw.	38	w.	8	12	17	2	4.5	
Detroit	730	160	166	29.17	29.95	— .03	60.0	+ 2.5	86	15	70	35	10	50	29	54	50	74		3.08	— 0.4	13	6,582	sw.	31	sw.	8	6	12	13	6.2	T.
Upper Lake Region.							54.7	+ 3.4											68	2.27	— 1.1								5.0		
Alpena	609	61	65	29.30	29.96	— .01	52.6	+ 3.6	90	14	62	26	5	43	38	47	41	69		1.60	— 1.9	7	6,758	se.	30	se.	16	8	12	11	6.0	T.
Escanaba	612	43	57	29.31	29.97	+ .01	51.8	+ 2.5	84	14	61	27	3	42	34	47	42	71		1.65	— 1.7	10	6,494	n.	26	n.	4	4	11	16	6.8	
Grand Haven	632	55	64	29.27	29.93	.00	55.8	+ 1.4	78	23	66	31	5	46	33	50	45	70		2.96	— 0.5	14	6,914	sw.	28	sw.	13	10	10	11	5.4	
Marquette	734	67	95	29.18	29.97	— .01	53.0	+ 4.0	92	13	62	32	6	44	39	47	42	69		2.88	— 0.1	12	6,989	nw.	32	nw.	14	5	13	13	6.6	T.
Port Huron	638	70	108	29.30	29.99	+ .02	55.6	+ 2.4	86	15	66	30	5	45	33	50	45	72		3.85	+ 0.5	12	7,760	n.	35	n.	9	5	7	19	7.3	0.5
Sault Ste. Marie	614	40	61	29.28	29.94	— .01	51.6	+ 3 8	84	13	63	27	7	40	39	46	40	68		0.84	— 1.4	5	6,265	w.	33	nw.	9	15	11	5	4.0	
Chicago	823	241	274	29.09	29.97	+ .01	58.1	+ 2.0	86	14	67	36	3	49	36	52	47	71		3.59	— 0.1	12	12,114	ne.	43	ne.	8	10	16	5	5.0	
Milwaukee	681	194	142	29.25	29.97	.00	57.5	+ 4.6	87	12	68	35	3	48	39	49	44	66		2.57	— 1.0	11	7,800	ne.	35	sw.	13	6	7	18	6.6	
Green Bay	617	49	57	29.30	29.97	— .01	57.9	+ 4.0	87	13	69	30	3	47	35	50	45	66		2.10	— 1.7	11	5,796	n.	30	n.	8	9	5	17	6.3	
Duluth	702	95	106	29.21	29.97	+ .01	53.2	+ 5.2	84	14	63	31	3	44	31	45	38	63		0.62	— 3.1	7	7,202	ne.	38	sw.	13	11	15	5	4.8	
North Dakota.							50.4	+ 6.9											55	1.19	— 1.1								3.7		
Moorhead	935	54	60	28 94	29.94	+ .01	59.9	+ 6.7	96	12	75	27	4	45	46	51	43	58		0.86	— 1.6	7	7,297	se.	32	se.	28	16	10	5	3.8	
Bismarck	1,674	16	29	28.15	29.90	+ .01	61.0	+ 6.8	94	27	75	29	4	47	49	51	42	53		1.26	— 1.2	4	7,705	se.	36	se.	31	20	7	4	3.7	
Williston	1,875	15	31	27.91	29.85	— .04	60.4	+ 7.2	101	27	76	29	16	45	53	51	42	55		1.46	— 0.6	6	8,634	s.	50	w.	29	23	7	1	3.5	

TABLE I.—*Climatological data for Weather Bureau Stations, May, 1900—Continued.*

Stations.	Elevation of instruments: Barometer above sea level, feet.	Elevation of instruments: Thermometers above ground.	Elevation of instruments: Anemometer above ground.	Pressure, in inches: Mean actual, 8 a. m. + 8 p. m. + 2.	Pressure, in inches: Mean reduced.	Pressure, in inches: Departure from normal.	Temperature of the air, in degrees Fahrenheit: Mean max. + mean min. + 2.	Temperature: Departure from normal.	Temperature: Maximum.	Temperature: Date.	Temperature: Mean maximum.	Temperature: Minimum.	Temperature: Date.	Temperature: Mean minimum.	Temperature: Greatest daily range.	Mean wet thermometer.	Mean temperature of the dew-point.	Mean relative humidity, per cent.	Precipitation, in inches: Total.	Precipitation: Departure from normal.	Precipitation: Days with .01, or more.	Wind: Total movement, miles.	Wind: Prevailing direction.	Wind: Maximum velocity: Miles per hour.	Wind: Maximum velocity: Direction.	Wind: Maximum velocity: Date.	Clear days.	Partly cloudy days.	Cloudy days.	Average cloudiness, tenths.	Total snowfall.
Upper Miss. Valley.																															
Minneapolis	.....	99	108	.....	.....	.....	64.7	+ 3.5	90	12	74	33	3	50	37	.....	.....	67	3.60	— 0.5											4.9
St. Paul	837	114	124	29.04	29.93	.00	62.0	+ 5.2											0.43	— 3.3	4	8,209	ne.	36	sw.	13	11	13	7	....
La Crosse	714	70	78	.....	.....	.....	62.2	+ 4.7	91	12	74	33	4	51	38	51	42	54	0.34	— 3.1	3	5,137	se.	26	s.	25	11	17	3	4.1
Davenport	606	71	79	29.30	29.94	— .02	62.4	+ 3.0	88	12	74	34	4	51	33	.....	.....	.....	3.47	+ 0.2	9	4,341	s.	30	se.	14	10	11	10	5.3
Des Moines	861	84	88	29.05	29.96	+ .03	64.0	+ 3.3	89	11	74	37	3	54	28	57	52	71	4.68	+ 0.4	15	4,827	sw.	26	nw.	14	9	9	13	5.8
Dubuque	698	101	109	29.21	29.96	+ .01	64.2	+ 3.8	89	11	74	35	3	54	30	58	54	74	4.76	+ 0.1	14	6,038	sw.	36	sw.	11	9	10	6	5.2
Keokuk	614	63	78	29.30	29.95	+ .01	63.2	+ 3.3	89	27	73	33	4	53	33	55	49	63	4.75	+ 0.8	11	5,180	nw.	30	n.	9	14	10	7	4.5
Cairo	356	87	93	29.60	29.98	+ .04	65.5	+ 2.9	87	13	75	42	10	59	29	61	58	73	4.56	+ 0.5	10	4,939	sw.	25	sw.	6	14	12	5	4.2
Springfield, Ill.	644	82	92	29.28	29.96	— .01	68.6	+ 1.5	88	15	78	39	3	55	32	57	50	64	3.98	+ 0.2	14	5,466	s.	42	sw.	7	5	19	7	5.1
Hannibal	534	75	110	.....	.....	.....	65.5	+ 2.9	86	*	75	39	3	56	31	.....	.....	.....	2.49	— 2.5	11	6,134	s.	33	se.	6	12	11	8	5.0
St. Louis	567	111	210	29.35	29.95	+ .01	65.8	+ 2.7	88	13	76	40	3	56	32	57	50	65	5.65	+ 0.8	11	5,778	sw.	33	w.	2	12	10	9	4.5
Missouri Valley.							68.8	+ 3.0	89	14	78	48	10	60	29	60	54	65	4.47	— 0.1	10	6,418	s.	30	nw.	2	12	10	9	5.0
Columbia	784	4	84	.....	.....	.....	65.1	+ 5.0										62	2.16	— 2.1											4.6
Kansas City	963	78	95	28.94	29.95	+ .08	66.8	+ 2.7	89	13	79	37	10	55	38	.....	.....	.....	1.75	— 4.1	11	5,151	s.	26	w.	2	7	12	12	5.8
Springfield, Mo.	1,324	100	108	28.57	29.95	+ .01	66.7	+ 2.5	88	13	76	41	3	58	30	58	53	67	2.78	— 1.8	11	5,909	se.	27	nw.	2	9	14	8	4.9
Topeka	.....	81	.....	.....	.....	.....	66.1	+ 2.9	88	13	75	42	3	57	33	59	55	74	2.96	— 3.1	12	6,847	s.	38	nw.	2	15	9	7	4.3
Lincoln	1,189	75	84	28.66	29.91	— .02	66.3	+ 2.9	87	30	76	39	3	56	33	.....	.....	.....	3.56	— 2.0	11	.....	s.	.....	.....	.....	7	18	6	5.3
Omaha	1,105	115	121	28.76	29.91	— .01	64.8	+ 3.7	88	11	75	40	3	57	27	57	52	65	4.50	+ 0.2	12	7,080	s.	36	ne.	6	14	8	9	4.7
Valentine	2,598	39	40	27.24	29.91	.00	66.3	+ 4.6	89	12	75	40	3	50	42	52	42	55	2.24	— 2.1	7	6,107	sw.	32	n.	2	11	15	5	5.0
Sioux City	1,135	96	164	.....	.....	.....	62.9	+ 7.1	95	11	76	32	3	52	42	.....	.....	.....	1.23	— 1.6	8	7,818	nw.	47	ne.	30	18	6	7	4.3
Pierre	1,572	11	19	28.25	29.88	— .01	64.0	+ 5.6	91	13	76	29	3	52	39	52	39	44	1.87	— 1.6	8	9,099	se.	35	nw.	31	13	11	7	4.6
Huron	1,306	56	67	28.53	29.91	— .02	65.9	+10.3	98	11	80	37	3	48	42	53	45	58	0.24	— 2.1	5	8,478	se.	53	nw.	29	16	8	7	4.9
Yankton	1,233	52	58	.....	.....	.....	62.0	+ 6.9	91	11	76	31	3	53	37	.....	.....	.....	0.62	— 2.4	4	8,610	se.	50	se.	31	15	15	1	3.3
Northern Slope.							64.8	+ 6.3	94	11	76	35	3	53	37	.....	.....	57	2.05	— 2.3	7	6,627	e.	35	sw.	12	13	13	5	4.6
Havre	2,506	46	47	27.25	29.85	— .06	59.0	+ 5.7											1.00	— 1.4											4.6
Miles City	2,371	42	50	27.36	29.80	— .09	58.7	+ 5.4	93	26	72	35	2	45	43	50	43	63	0.88	— 0.7	11	7,009	sw.	48	sw.	12	15	13	3	4.5
Helena	4,110	88	93	25.78	29.93	.00	63.8	+ 7.4	96	26	78	36	2	49	44	54	48	64	0.20	— 2.1	5	5,008	s.	34	w.	6	20	8	3	3.3
Kalispell	2,965	45	51	26.87	29.94	.....	55.4	+ 3.6	83	10	66	38	12	45	36	45	34	50	3.22	+ 1.6	12	6,475	sw.	48	sw.	16	1	13	17	6.8
Rapid City	3,234	46	50	26.54	29.81	— .09	52.4	.....	79	11	64	32	23	41	37	45	39	66	3.90	.....	9	4,788	se.	37	sw.	22	12	13	6	4.8	T.
Cheyenne	6,088	56	64	24.01	29.91	+ .01	61.6	+ 8.7	92	27	75	37	3	49	39	51	39	48	0.53	— 3.1	6	6,077	se.	36	w.	12	17	13	1	3.3
Lander	5,372	28	36	24.62	29.93	+ .02	54.8	+ 4.2	81	31	68	25	1	42	37	44	31	48	0.76	— 1.5	10	7,088	nw.	43	s.	11	10	18	3	4.4
North Platte	2,821	43	52	27.04	29.92	+ .02	55.5	+ 5.3	85	27	70	30	1	41	42	46	35	54	0.51	— 2.2	6	3,983	sw.	52	sw.	11	11	14	6	4.8
Middle Slope.							63.8	+ 5.1	91	11	75	41	20	51	35	54	48	62	0.90	— 1.8	6	6,228	se.	36	nw.	31	14	16	1	4.6
Denver	5,291	79	151	24.72	29.93	+ .03	64.2	+ 2.2										66	2.30	— 0.8											4.3
Pueblo	4,685	80	86	25.27	29.92	+ .06	60.6	+ 4.2	87	31	73	36	1	48	35	49	39	52	0.53	— 2.3	6	5,632	s.	40	sw.	11	13	16	2	4.1
Concordia	4,399	42	47	28.47	29.93	.00	61.2	+ 2.5	90	31	74	38	3	49	40	49	38	52	1.42	— 0.4	5	4,831	se.	34	n.	17	17	12	2	3.9
Dodge	2,509	44	52	27.35	29.92	+ .05	65.6	+ 3.5	89	13	76	36	3	55	31	58	54	74	2.32	— 1.9	15	5,311	s.	26	s.	12	8	17	6	5.2
Wichita	1,358	78	85	28.52	29.94	+ .06	64.4	+ 1.5	88	12	76	41	3	53	34	57	52	72	2.20	— 1.0	8	7,381	s.	41	s.	12	10	15	6	4.9
Oklahoma	1,214	54	62	28.65	29.93	+ .06	66.3	+ 2.1	87	30	76	41	3	57	31	59	55	72	6.50	+ 2.5	8	6,310	s.	30	n.	2	13	8	10	4.8
Southern Slope.							67.0	— 0.9	88	31	76	45	3	58	26	60	57	74	3.84	— 1.5	10	6,347	s.	35	w.	27	8	11	12	5.8
Abilene	1,738	45	54	28.13	29.92	+ .03	66.0	— 2.2										68	4.32	+ 1.5											4.4
Amarillo	3,676	54	61	26.22	29.92	+ .04	59.2	+ 1.7										67	4.11	+ 0.5	10	6,199	se.	39	nw.	30	12	12	7	4.8
Southern Plateau.							55.6	+ 0.1	79	15	69	31	12	42	38	44	28	42	4.53	+ 2.5	10	10,173	s.	48	nw.	6	14	10	7	4.8
El Paso	3,762	10	110	26.10	29.84	+ .03	55.6	+ 1.2	82	9	70	32	1	41	42	44	26	42	0.65	0.0											2.3
Santa Fe	7,013	47	50	23.26	29.91	+ .03	59.1	.....	82	26	70	34	2	48	33	43	22	32	0.34	.....	4	5,040	se.	40	n.	11	17	10	4	3.5
Flagstaff	6,907	12	25	23.33	30.00	.....	60.6	+ 2.8	89	26	72	40	2	49	36	48	34	41	0.44	— 1.3	4	4,593	nw.	36	se.					5.5
Phenix	1,108	47	57	28.67	29.81	— .01	64.8	+ 2.7	92	27	79	37	18	50	39	47	25	30	0.06	— 0.6	4										7.0
Yuma	141	16	50	29.62	29.76	— .05	57.7	+ 1.1										59	1.91	+ 0.3											5.2
Independence	3,910	51	58	25.89	29.78	— .10	54.1	+ 1.4	79	9	65	35	16	43	31	45	36	57	1.92	0.0	8	4,289	s.	27	nw.	16	3	12	16	5.2
Middle Plateau.							59.7	+ 1.6	88	9	73	37	17	47	39	49	39	55	2.54	+ 0.9	8	3,902	se.	40	sw.	16	10	13	8	5.9
Carson City	4,720	82	92	25.22	29.93	+ .02	56.6	+ 2.3	84	26	69	33	17	44	42	46	36	53	0.68	— 0.5	7	7,182	s.	42	w.	16	20	7	4	3.4
Winnemucca	4,344	29	70	25.61	29.94	+ .03	57.4	+ 0.4	82	3	69	37	31	46	33	48	40	60	2.12	+ 0.7	14	4,936	s.	25	se.	12	4	7	20	7.3
Cedar City	5,850	36	47	24.23	29.93	.....	60.8	— 0.1	87	3	72	44	26	50	32	54	49	69	2.29	+ 0.6	7	4,173	s.	24	sw.	18	13	13	5	4.6
Salt Lake City	4,366	105	110	25.57	29.92	+ .01	54.0	— 0.4										76	4.37	+ 1.4											6.7
Grand Junction	4,608	43	50	25.31	29.87	.....	50.4	— 2.1	58	1	55	41	12	46	15	49	47	90	6.95	+ 1.7	23	4,422	w.	26	w.	24	4	8	19	7.5
Northern Plateau.							49.8	— 0.6	61	25	56	35	12	43	21	.....	.....	.....	2.97	+ 0.5	20	3,479	w.	30	sw.	25	3	17	11	6.5
Baker City	3,471	53	58	26.41	29.97	+ .02	56.0	+ 0.7	74	3	64	39	27	48	26	50	46	74	3.73	+ 1.6	16	4,283	se.	30	s.	23	2	14	15	6.6
Boise	2,739	61	68	27.11	29.93	— .01	55.2	+ 1.1	76	3	63	36	27	47	28	.....	.....	.....	4.62	+ 2.1	16	4,470	sw.	40	sw.	23	4	8	19	7.0
Pocatello	4,482	48	56	25.43	29.92	.00	53.1	— 1.8	64	14	59	42	28	48	19	50	.....	70	5.68	+ 1.9	21	4,609	sw.	36	sw.	23	6	10	15	6.6
Spokane	1,943	99	107	27.92	29.95	.00	56.8	— 0.5	78	3	64	43	12	49	25	51	46	70	3.90	+ 1.5	16	5,888	nw.	42	s.	23	3	15	13	6.7
Walla Walla	1,000	65	73	28.90	29.96	+ .02	57.0	+ 0.1	77	14	67	38	27	47	32	51	46	72	2.74	+ 0.8	15	2,809	nw.	28	w.	25	7	10	14	6.3
N. Pac. Coast Reg.							60.7	+ 0.6										67	1.62	+ 0.1											3.9
Neah Bay	50	7	24	29.96	30.02	.00	54.4	+ 1.7	66	7	59	43	24	50	17	51	48	81	2.08	— 1.0	11	5,618	nw.	33	n.	21	7	15	9	5.4
Port Crescent	259	15	20	.....	.....	.....	55.4	.....	78	20	62	39	12	48	23	47	40	63	0.58	.....	6	15,260	nw.	81	nw.	15	19	7	5	3.3
Seattle	123	114	121	29.89	30.02	+ .02	67.0	0.0	92	31	78	46	11	55	34	54	43	51	1.18	— 0.2	5	4,415	n.	24	n.	19	17	7	7	3.9
Tacoma	213	113	120	.....	.....	.....	64.5	+ 1.0	91	21	77	44	12	52	37	56	49	64	2.88	+ 1.9	5	5,668	se.	28	sw.	9	17	5	9	3.7
Astoria	20	57	64	30.05	30.07	+ .04	57.0	+ 0.4	71	20	64	47	30	51	20	52	48	78	0.32	— 0.4	2	8,987	w.	39	w.	11	17	10	4	3.3
Portland, Oreg	154	308	313	29.87	30.03	— .02	52.6	+ 0.4	68	8	58	44	5	48	17	.....	.....	.....	0.17	— 1.8	2	18,797	nw.	70	nw.	18	16	2	13	4.7
Roseburg	518	56	67	29.44	30.00	— .05	63.7	+ 1.4										69	1.65	+ 1.3											3.1
Mid. Pac. C'st Reg.							68.4	+ 0.4	97	31	82	44	12	54	39	55	44	32	1.97	+ 1.6	5	4,845	nw.	20	nw.	27	22	4	5	2.4
Eureka	62	60	69	30.01	30.07	+ .04	64.0	+ 1.9	87	15	74	47	1	54	33	57	53	80	1.81	+ 1.4	4	3,590	w.	24	w.	10	12	16	3	3.6
Mount Tamalpais	2,375	11	18	27.52	30.00	.....	60.9	+ 0.5	75	9	66	49	1	56	21	57	54	80	1.45	+ 1.1	4	4,654	nw.	24	s.	5	22	4	5	3.8
Red Bluff	332	50	56	29.58	29.93	— .01	61.6	+ 2.6	88	29	75	42	25	49	42	52	47	66	1.38	+ 1.1	4	4,534	w.	20	w.	11	20	5	6	3.0
Sacramento	69	106	117	29.86	29.93	— .01																									
San Francisco	155	161	167	29.84	30.00	+ .02																									
Point Reyes Light†	.....	12	16	.....	.....	.....																									
S. Pac. Coast Reg.																															
Fresno	330	67	70	29.56	29.91	+ .01	72.8	+ 0.5	97	30	87	50	2	58	36	52	29	29	0.41	— 0.1	4	8,738	e.	39	nw.	6	20	10	1	2.7
Los Angeles	338	74	82	29.56	29.91	— .02	73.5	+ 1.5											1.65	+ 0.6	6	5,256	se.	44	s.	31	18	10	3	3.8	T.
San Diego	87	94	102	29.86	29.96	+ .01	72.8	+ 2.8	80	30	69	35	6	47	28	45	28	41	1.50	— 0.3	3	.....	.....	.....	.....	.....	15	9	7	....
San Luis Obispo	201	10	46	29.76	29.98	+ .04	58.0	.....	79	26	68	25	1	36	43	43	.....	.....	0.12	0.0	1	3,308	nw.	30	w.	5	25	5	1	1.8
West Indies.							52.2	.....												0.0	0	5,047	w.	42	nw.	11	29	2	0	0.8
Basseterre	29	41	54	29.98	30.01	.....	77.6	+ 3.3	103	9	93	50	1	62	44	58	41	36	T.	0.0	0	7,530	nw.	48	se.	10	22	7	2	2.4
Bridgetown	30	57	65	29.94	29.97	.....	78.3	+ 1.1	104	30	94	54	1	62	39	58	42	25	0.22	— 0.1	4										4.0
Cienfuegos	52	62	67	29.88	29.93	.....	65.8	+ 0.4	88	31	78	40	11	53	33	48	22	25	0.60	— 0.4											4.5
Havana	57	83	100	29.90	29.96	.....	59.2	+ 1.7										37	0.45	— 0.2	5	5,433	w.	36	sw.	16	13	12	6	4.5
Kingston	286	38	52	29.64	29.93	.....	55.6	+ 0.1	79	15	69	31	12	42	38	44	28	40	1.47	+ 0.5	4	6,637	w.	34	nw.	21	9	10	12	5.9
Port of Spain	40	65	66	29.89	29.93	.....	55.6	+ 1.2	82	9	70	32	1	41	42	44	26	42	0.34	.....	4	5,726	se.	36	se.	11	14	10	7	3.8
Puerto Principe	352	85	62	29.61	29.95	.....	59.1	.....	82	26	70	34	2	48	33	43	22	32	0.44	— 1.3	4	5,040	se.	40	n.	16	24	4	3	2.3
Roseau	25	37	47	29.95	29.97	.....	60.6	+ 2.8	89	26	72	40	2	49	36	48	34	41	0.06	— 0.6	4	4,593	nw.	36	se.	11	17	10	4	3.5
San Juan	82	48	73	29.92	30.00	.....	64.8	+ 2.7	92	27	79	37	18	50	39	47	25	30	1.91	+ 0.3											5.5
Santiago de Cuba	82	26	33	29.85	29.93	.....	57.7	+ 1.1										59	1.92	0.0	8	3,902	se.	40	sw.	16	10	13	8	5.2
Santo Domingo	57	37	44	29.94	30.00	.....	54.1	+ 1.4	79	9	65	35	16	43	31	45	36	57	2.54	+ 0.9	8	3,479	w.	42	w.	16	20	7	4	3.4
Willemstad	75	39	46	29.82	29.89	.....	59.7	+ 1.6	88	9	73	37	17	47	39	49	39	55	0.68	— 0.5	7	7,182	s.	42	w.	16	20	7	4	3.4
							56.6	+ 2.3	84	26	69	33	17	44	42	46	36	53	2.12	+ 0.7	14	4,936	s.	25	se.	12	4	7	20	7.3
							57.4	+ 0.4	82	3	69	37	31	46	33	48	40	60	2.29	+ 0.6	7	4,173	s.	24	sw.	18	13	13	5	4.6
							60.8	— 0.1	87	3	72	44	26	50	32	54	49	69	4.37	+ 1.4											6.7
							54.0	— 0.4										76	6.95	+ 1.7	23	4,422	w.	26	w.	24	4	8	19	7.5
							50.4	— 2.1	58	1	55	41	12	46	15	49	47	90	2.97	+ 0.5	20	3,479	w.	30	sw.	25	3	17	11	6.5
							49.8	— 0.6	61	25	56	35	12	43	21	.....	.....	.....	3.73	+ 1.6	16	4,283	se.	30	s.	23	2	14	15	6.6
							56.0	+ 0.7	74	3	64	39	27	48	26	50	46	74	4.62	+ 2.1	16	4,470	sw.	40	sw.	23	4	8	19	7.0
							55.2	+ 1.1	76	3	63	36	27	47	28	.....	.....	.....	5.68	+ 1.9	21	4,609	sw.	36	sw.	23	6	10	15	6.6
							53.1	— 1.8	64	14	59	42	28	48	19	50	.....	70	3.90	+ 1.5	16	5,888	nw.	42	s.	23	3	15	13	6.7
							56.8	— 0.5	78	3	64	43	12	49	25	51	46	72	2.74	+ 0.8	15	2,809	nw.	28	w.	25	7	10	14	6.3
							57.0	+ 0.1	77	14	67	38	27	47	32	51	46	72	1.62	+ 0.1											3.9
							60.7	+ 0.6										67	2.08	— 1.0	11	5,618	nw.	33	n.	21	7	15	9	5.4
							54.4	+ 1.7	66	7	59	43	24	50	17	51	48	81	0.58	.....	6	15,260	nw.	81	nw.	15	19	7	5	3.3
							55.4	.....	78	20	62	39	12	48	23	47	40	63	1.18	— 0.2	5	4,415	n.	24	n.	19	17	7	7	3.9
							67.0	0.0	92	31	78	46	11	55	34	54	43	51	2.88	+ 1.9	5	5,668	se.	28	sw.	9	17	5	9	3.7
							64.5	+ 1.0	91	21	77	44	12	52	37	56	49	64	0.32	— 0.4	2	8,987	w.	39	w.	11	17	10	4	3.3
							57.0	+ 0.4	71	20	64	47	30	51	20	52	48	78	0.17	— 1.8	2	18,797	nw.	70	nw.	18	16	2	13	4.7
							52.6	+ 0.4	68	8	58	44	5	48	17	.....	.....	.....	1.65	+ 1.3											3.1
							63.7	+ 1.4										69	1.97	+ 1.6	5	4,845	nw.	20	nw.	27	22	4	5	2.4
							68.4	+ 0.4	97	31	82	44	12	54	39	55	44	32	1.81	+ 1.4	4	3,590	w.	24	w.	10	12	16	3	3.6
							64.0	+ 1.9	87	15	74	47	1	54	33	57	53	78	1.45	+ 1.1	4	4,654	nw.	24	s.	5	22	4	5	3.8
							60.9	+ 0.5	75	9	66	49	1	56	21	57	54	80	1.38	+ 1.1	4	4,534	w.	20	w.	11	20	5	6	3.0
							61.6	+ 2.6	88	29	75	42	25	49	42	52	47	66													
							79.8	.....	86	23	85	68	14	75	16	74	72	76	2.21	.....	18	7,921	e.	22	e.	25	3	22	6	5.2
							80.6	.....	88	24	86	71	15	75	15	74	72	77	6.39	+ 3.4	15	7,833	e.	28	se.	17	1	22	8	6.4
							79.3	.....	92	5	86	69	7	72	22	74	72	83	5.55	.....	12	5,777	ne.	25	se.	28	9	11	11	5.6
							77.6	.....	88	17	83	69	14	72	16	74	72	86	9.93	+ 5.5	17	7,974	e.	40	ne.	13	6	14	11	5.8

TABLE II.—*Climatological record of voluntary and other cooperating observers, May, 1900.*

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Alabama.	°	°	°	*Ins.*	*Ins.*
Ashville	97	40	69.5	2.93	
Bermuda	93	45	73.8	3.94	
Birmingham	90	46	72.8	2.29	
Brewton	96	46	74.8	2.25	
Bridgeport	.....	.....	.....	1.69	
Citronelle	91	57	74.8	2.11	
Clanton	88	45	69.6	1.20	
Daphne	91	50	74.0	2.66	
Decatur	93	42	70.8	3.09	
Demopolis	.....	.....	.....	2.43	
Eufaula[a]	95	48	74.0	2.72	
Eutaw	96	50	73.0	4.68	
Evergreen	88	44	71.4	1.75	
Florence[a]	.....	.....	.....	5.42	
Florence[b]	89	42	69.2	5.72	
Fort Deposit	90	50	72 4	1.27	
Gadsden	94	41	70.4	1.66	
Goodwater	91	41	70.9	2.30	
Greensboro	89	49	71.8	1.57	
Hamilton	91	38	68.8	4.53	
Healing Springs	90	47	72.6	1.38	
Highland Home	89	54	72.2	1.34	
Livingston[a]	91	50	72 3	1.53	
Livingston[b]	93*	52*	72.7*	2 05	
Lock No. 4	90	44	70.0	3.43	
Madison Station	92	40	69.4	3.82	
Maplegrove	93	41	68 5	4.34	
Marion	89	50	73 0	2.85	
Newbern	90	49	72.5	1.74	
Newburg	.....	.....	.....	3.75	
Newton	87	50	70.3	4.98	
Oneonta	87	41	68.7	4.24	
Opelika	95	46	71.6	0.07	
Oxanna	88	43	70.2	2.29	
Pineapple	94	45	73.4	1.75	
Prattville	89	45	72.4	.....	
Pushmataha	92	49	72.9	3.73	
Riverton	90	40	68.0	4.97	
Scottsboro	89	40	68 3	2.26	
Selma	90	50	72.8	1.55	
Talladega	.....	.....	.....	2 35	
Tallassee	.....	.....	.....	1.58	
Thomasville	93	51	74 1	0.92	
Tuscaloosa	91	45	71.4	1.43	
Tuscumbia	91	44	70 0	4.48	
Tuskegee	92	48	72.6	1.53	
Union Springs	91	51	73.1	0.85	
Uniontown	92	54	74.6	1.55	
Valleyhead	90	44	67.2	3.48	
Warrior	.....	.....	.....	2.28	
Wetumpka	91	46	72.8	1.88	
Wilson	.....	.....	.....	2.18	
Alaska.					
Juneau	64	36	47.2	5.00	
Sitka	59	31	45.4	4.56	
Arizona.					
Allaire Ranch	.....	.....	.....	0.01	
Arizona Canal Co. Dam	102	50	74.2	T	
Aztec[b]	110	61	86.8	0.07	
Benson[a]	95	57	79.2	0.00	
Bisbee	92	42	69.0	T.	
Blaisdell	110	60	84.1	0.00	
Bowie[b]	98	67	84.8	0.00	
Buckeye	102	50	74.2	0.20	
Camp Creek	95	47	71.4	0.19	
Casagrande[a]	104	65	82.7	0.00	
Champie Camp	106	46	75.4	0.55	
Congress	96	50	74.3	0.21	
Dragoon Summit[a]	93	55	69.4	0.00	
Dudleyville	103	41	72.4	0.30	
Fort Apache	94	38	64 4	0.10	
Fort Defiance	85	29	55.8	0.17	
Fort Grant	91	46	69.1	T.	
Fort Huachuca	98	39	67.8	T.	
Fort Mohave	108	54	80 4	0.00	
Gilabend[a]	108	63	82.3	0.01	
Holbrook	92	37	64.2	0.09	
Ingleside	107	49	77.2	0.33	
Jerome	88	42	69.3	0.03	
Maricopa[a]	104	62	84.0	T.	
Mesa	102	47	75.8	0 12	
Mount Huachuca	93	39	68 8	0.02	
Music Mountain	103	35	73.3	T.	
Natural Bridge	.....	.....	.....	0.66	
Nogales	100	38	68.9	0.05	
Oracle	94	42	69.4	0.11	
Oro	.....	.....	.....	0.00	
Pantano[a]	94	60	74.5	0.00	
Parker	108	47	79 8	0.05	
Peoria	107	49	77.7	0.05	
Phenix	106	46	75.8	0.10	
Pima	100	35	72.0	0.06	
Pinal Ranch	.....	.....	.....	0.43	
Prescott	89	29	57.8	0.78	
San Carlos	105	44	74.6	T.	
San Simon[a]	99	68	82.6	0.00	
Sentinel[a]	108	58	82.8	0.00	
Signal	106	45	76.4	0.24	
Silverking	.....	.....	.....	0.29	
Snowflake	90	30	60.0	0.48	
Strawberry	87	30	57.8	1.00	
Supai	103	45	74.6	0.00	
Texas Hill[a]	112	63	83.3	0.00	
Tonto	100	33	68.0	0.17	
Tucson	102	45	74.6	T.	
Vail[b]	98	57	80.0	T.	
Willcox[a]	95	55	78.0	0.00	
Winslow	91	35	63.6	0.53	
Yarnell	.....	.....	.....	0.72	
Arkansas.					
Amity	86	42	68.8	3.51	
Arkadelphia	91	43	70.7	4.09	
Arkansas City	.....	.....	.....	1.89	
Batesville	91	38	68.3	4.89	
Beebranch	91[4]	38[4]	67.5[4]	3 77	
Blanchard Springs	91	40	70.8	2.44	
Brinkley	88	41	69.1	3.90	
Camden[a]	.....	.....	.....	2.11	
Camden[b]	91	45	71.8	2.02	
Canton	89	40	67.2	2.78	
Conway	.....	.....	.....	2.89	
Corning	89	40	68.2	4.39	
Dallas	90	44	69.6	4.02	
Dardanelle	.....	.....	.....	4.06	
Elon	89	41	70.2	3.18	
Fayetteville	85	41	65.1	4.23	
Forrest	90	40	70.0	5.10	
Fulton	.....	.....	.....	3.84	
Hardy	87	41	68.3	3.84	
Helena[a]	.....	.....	.....	3.75	
Helena[b]	89	42	70.2	3.56	
Hot Springs[b]	.....	.....	.....	4.48	
Jonesboro	95	44	71.7	2.90	
Keesees Ferry	88	37	67.4	1.46	
Lacrosse	88	41	67.8	3.78	
Lonoke	92	40	69.5	4.78	
Luna Landing	89	42	71.4	2.00	
Lutherville	87	40	67.6	3.57	
Malvern	87	41	68.2	1.92	
Marvell	92	42	71.2	3.64	
Mount Nebo	84	45	67.0	5.07	
New Gascony	90	42	71.7	3.31	
Newport[a]	.....	.....	.....	2 64	
Newport[b]	92	40	69.5	2.64	
Newport[c]	97	41	69.0	3 14	
Oregon	85	41	66.6	2.92	
Osceola	94	41	70 6	2.70	
Ozark	89	46	70.5	3.73	
Pinebluff	93	42	71.0	2.22	
Pocahontas	85	37	67.6	4.47	
Pond	86	40	66.4	4.32	
Prescott	92	45	71.6	3.40	
Rison	92	46	72.6	3.72	
Russellville	87	42	68.0	4.11	
Silversprings	89	42	66.5	5.43	
Spielerville	89	46	69.2	3 82	
Stuttgart	89	40	69 6	2.63	
Texarkana	94	48	73 0	3.21	
Warren	91	41	71.0	2.30	
Washington	89	47	71.0	5.73	
Wiggs	87	45	68 4	3 74	
Winslow	81	43	63.4	2.83	
Witts Springs	92[4]	40[4]	67.4[4]	3.22	
California.					
Angiola	99	40	66.8	1.11	
Azusa	.....	.....	.....	2.98	
Bakersfield	99	42	67.7	0.48	
Ballast Point L. H	.....	.....	.....	1.42	
Bear Valley	.....	.....	.....	3.12	
Bellevue	.....	.....	.....	1.02	
Berkeley	81	46	60.4	0.91	
Beverly	.....	.....	.....	3.15	8.0
Bishop	91	31	61.5	0.34	
Boca[a]	78	26	48.2	1.10	6.0
Bodie	74	10	42.8	0.48	4.5
Bowman	.....	.....	.....	2.67	
Branscomb	.....	.....	.....	2.58	
Caliente	.....	.....	.....	2.35	
Campbell	87	35	59.2	0.41	
Cape Mendocino L. H	.....	.....	.....	1.60	
Cedarville	77	33	53.5	0.61	
Chico[a]	95	53	69.3	1.64	
Cisco[a]	67	30	46.7	2.53	
Claremont	89	37	62.6	2.31	
Corning[a]	98	58	69 5	0.76	
Coronado	74	54	63.2	.....	
Crescent City	63	39	52.2	5.06	
Crescent City L. H	.....	.....	.....	4.90	
Cuyamaca	76	25	52.4	4.03	
Delano[a]	95	52	67.5	0.91	
Delta[a]	88	51	65.0	4.10	
Drytown	91	41	64.2	1.44	
Dunnigan[a]	97	52	69.4	0.86	
Durham[a]	91	49	66.4	1.58	
East Brother L. H	.....	.....	.....	0.10	
Edmanton[a]	79	34	52.4	1.63	
Elcajon	90	38	64 4	1.48	
Elmdale	96	36	65.4	1.26	
Elsinore	100	38	67.4	1.04	
Escondido	91	31	62.3	1.27	
Fallbrook[a]	91	47	63.1	1.76	
Folsom City[a]	96	52	67.7	1.66	
Fordyce Dam	.....	.....	.....	2.33	4.0
Fort Ross	73	42	55.2	1.35	
Fort Tejon	.....	.....	.....	1.57	
Georgetown	86	36	59.8	1.88	
Gilroy Hot Springs	.....	.....	.....	1.71	
Gilroy (near)	94	36	62.6	0.47	
Goshen[b]	95	55	74.0	2.21	
Grand Island[b]	93	48	68.9	0.61	
Grass Valley	.....	.....	.....	2.03	
Greenville	82	26	54.5	0.90	
Hanford	96	44	67.6	2.16	
Healdsburg	92	34	62.8	0.78	
Hollister	90	38	60.8	1.10	
Humboldt L. H	.....	.....	.....	2.79	
Indio[a]	103	54	80.9	T.	
Iowa Hill[a]	80	43	59.7	2.59	
Irvine	93	55	76.2	1.07	
Jackson	74	36	54.8	1.83	
Jolon	.....	.....	.....	1.18	
Kennedy Gold Mine	87	34	58.2	1.89	
King City[a]	84	42	53.8	0.86	
Kono Tayee	81	46	60.6	0.67	
Lamesa	.....	.....	.....	1.53	
Lankershim	99	42	67.7	1.05	
Laporte[a]	72	35	50.0	2.57	1.0
Las Fuentes Ranch	.....	.....	.....	1.50	
Legrand	97	39	68.9	1.07	
Lemoncove	100	40	69.8	2.80	
Lemoore[a]	96	48	71.1	1.23	
Lick Observatory	74	30	52.9	1.35	
Lime Point L. H	.....	.....	.....	0.21	
Lodi	93	43	65.4	2.72	
Los Gatos[b]	91	40	62.1	0 88	
Mammoth[a]	106	59	82.0	0.00	
Manzana	90	38	60.5	0.38	
Mare Island L. H	.....	.....	.....	0.44	
Merced[b]	97	32	63.8	0.97	
Mills College	.....	.....	.....	0.73	
Milo	.....	.....	.....	3.31	
Milton (near)	.....	.....	.....	1.49	
Modesto[a]	94	47	69.4	1.26	
Mohave[a]	95	45	66.8	0.42	
Mokelumne Hill[a]	.....	43	58 2	1.85	
Monterio	86	36	60.2	1.47	
Monterey[b]	71	55	62.8	0.36	
Morena	.....	.....	.....	2.40	
Mountainview	.....	.....	.....	0.66	
Napa[b]	96	38	62.8	0.31	
Needles	107	57	83.9	0.00	
Nevada City	80	36	56.7	1.90	
Newhall[a]	98	48	67.8	1.81	
North Bloomfield	81	38	58.6	2.44	
North Ontario	87	42	63.0	2.77	
North San Juan[a]	83	36	62 1	1.16	
Oakland[a]	81	46	61.8	1.07	
Ogilby[a]	108	70	87.2	0.00	
Oleta[a]	85	45	59.4	1.24	
Orland[a]	100	50	68.3	1.05	
Palermo	95	45	67.2	0.87	
Paso Robles[b]	96	40	64.4	0.67	
Peachland[b]	85	47	62.4	1.03	
Piedras Blancas L. H	.....	.....	.....	1.99	
Pigeon Point L. H	.....	.....	.....	0.38	
Pilot Creek	.....	.....	.....	1.70	
Pine Crest	87	45	63.3	3.28	
Placerville	94	34	59.4	1.15	
Point Ano Nuevo L. H	.....	.....	.....	0.79	
Point Arena L. H	.....	.....	.....	0 94	
Point Bonita L. H	.....	.....	.....	0.42	
Point Conception L. H	.....	.....	.....	1.45	
Point Firmin L. H	.....	.....	.....	1.60	
Point George L. H	.....	.....	.....	1.49	
Point Hueneme L. H	.....	.....	.....	1.47	
Point Lobos	68	48	55.6	0.14	
Point Loma L. H	.....	.....	.....	0.92	
Point Montara L. H	.....	.....	.....	0.25	
Point Pinos L. H	.....	.....	.....	0.40	
Point Sur L. H	.....	.....	.....	0.54	
Pomona (near)	96	40	66.2	2.00	
Poway[b]	90	50	60.2	1.48	
Quincy	82	31	57.4	0.98	
Ranch House	.....	.....	.....	1.28	
Raymond	95	35	64.4	1.62	
Redding	89	46	66.2	3.12	
Redlands	95	41	66.6	1.41	
Reedly	95	41	66.0	2.24	

TABLE II.—*Climatological record of voluntary and other cooperating observers*—Continued.

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
California—Cont'd.	°	°	°	*Ins.*	*Ins.*
Represa	88	44	64.8	1.72	
Riovista	93	45	65.9	1.39	
Riverside	96	41	67.0	1.29	
Roe Island L. H	.....	.....	.....	0.43	
Rosewood	97	40	65.6	2.60	
Sacramento *a*	92	43	66.0	3.79	
Salinas *1	79	55	62.4	0.31	
Salton *5	117	69	93.5	0 00	
San Bernardino	97	38	66.4	1.71	
San Jacinto	99	39	66.8	1.86	
San Jose	92	41	64.8	0.96	
San Leandro *1	82	52	62.9	0.58	
San Luis L. H	.....	.....	.....	0.96	
San Mateo *1	83	57	65.8	0.55	
San Miguel *1	93	50	66.2	0.45	
Santa Barbara *a*	82	47	60.8	1.90	
Santa Barbara L. H	.....	.....	.....	1.52	
Santa Clara *a*	.....	.....	.....	0.77	
Santa Cruz *b*	84	37	59.4	0.94	
Santa Cruz L. H	.....	.....	.....	0.71	
Santa Maria	84	45	63.1	1.97	
Santa Monica *1	72	54	63 1	1.50	
Santa Paula	101	46	67.5	1.49	
Santa Rosa *1	90	45	64.0	0.60	
Shasta	94	42	66.5	3.00	
Sierra Madre	89	44	64.5	2.84	
Sonoma	.....	.....	.....	0.47	
S. E. Farallone L. H	.....	.....	.....	0.10	
Stanford University	86	41	60.8	.....	
Stockton	90	45	63.8	1.82	
Summerdale	75	26	51 2	1.87	
Susanville	77	34	55.0	0.64	
Tehama *1	95	54	69 0	1.19	
Tejon Ranch	91	44	68.8	1.57	
Templeton *1	100	49	64.2	0.85	
Thermalito	94	43	67.1	0.89	
Trinidad L. H	.....	.....	.....	2.96	
Truckee *1	78	30	48.6	0.80	
Tulare *b*	100	42	69.2	2.03	
Tulare *c*	.....	.....	.....	2.03	
Ukiah	90	35	61.7	0 51	
Upperlake	88	39	60.2	0.81	
Upper Mattole	.....	.....	.....	3.61	
Vacaville *a* *1	97	48	66.6	0.34	
Ventura	76	44	60.8	1.40	
Visalia *b*	95	41	66.0	1.84	
Volcano Springs *1	114	66	85.2	0.00	
Walnutcreek	94	48	66.4	0.77	
Westpoint	.....	.....	.....	1.75	
Wheatland	92	44	65.3	2.18	
Williams *1	94	54	71.2	0.58	
Wilmington *1	79	53	64.9	1.80	
Wire Bridge *5	89	48	66.1	2.34	
Yerba Buena L. H	.....	.....	.....	0 05	
Yreka	81	35	56.2	0.37	
Colorado.					
Arkins	.....	.....	.....	1.76	
Boulder	83	32	59.8	1.84	
Boxelder	.....	.....	.....	4.00	
Breckenridge	69	11	39.9	1.68	19.0
Buenavista	.....	.....	.....	0.07	
Canyon	89	39	60.3	2.38	
Castlerock	88	28	56.2	0.55	
Cedaredge	87	30	58.5	0.76	
Cheyenne Wells	87	38	60.1	0.89	
Clearview *1	69	18	44.2	2.91	8.5
Colibran	.....	.....	.....	0.92	
Colorado Springs	80	34	55.5	2.03	
Cope	92	37	61.5	1.54	
Crook	93	33	63.8	2.87	
Delta	95	30	62.4	0.67	
Dumont	.....	.....	.....	1.02	
Durango	85	29	56.5	0.82	
Fairview	78	27	49.8	.....	
Fort Collins	85	30	57.8	1.75	
Fort Morgan	91	31	60.9	1.06	
Fox	.....	.....	.....	1.00	
Garnett	80	25	51.5	1.17	
Georgetown	76	27	50.1	.....	
Gilman	.....	.....	.....	1.84	
Gleneyrie	78	35	55.0	3.65	
Glenwood	.....	.....	.....	0.13	
Greeley	87	31	59.4	0.96	
Grover	.....	.....	.....	0.05	
Gunnison	85	20	53.0	0.25	T.
Hamps	85	31	56.6	1.25	
Hoehne	85	33	59.2	1.89	
Holly	.....	.....	.....	2.05	
Holyoke (near)	94	33	60.8	2.01	
Hugo	.....	.....	.....	1.50	
Husted	82	32	54.4	2.12	
Lake Moraine	66	15	41.8	2.44	13.1
Lamar	93	39	64.0	2 35	
Laporte	.....	.....	.....	1.84	
Las Animas	89	39	60.8	1.99	
Lay	87	19	52.8	0.27	
Colorado—Cont'd.	°	°	°	*Ins.*	*Ins.*
Leadville	76	30	43 5	0.16	0.8
Leroy	88	32	59.6	2 10	
Longs Peak	70	19	44.9	0.60	0.8
Mancos	82	28	54.4	1.14	
Marshall Pass	.....	.....	.....	0.05	0.5
Meeker	93	24	55.0	0.69	
Mitchell	.....	.....	.....	1.20	12.0
Montrose	.....	.....	.....	0.20	
Moraine	75	21	48.0	1.30	
Pagoda	84	27	53.6	0.47	
Palmer	.....	.....	.....	0.92	
Parachute	92	34	61.7	0 17	
Rockyford	90	38	61.7	2.28	
Ruby	.....	.....	.....	0.10	1.0
Saguache	80	20	54-2	1.65	1.0
Salida	87	27	55.1	0.50	
San Luis	81	26	52.7	1.43	4.7
Santa Clara *1	81	25	52.2	2.15	2.0
Sapinero	.....	.....	.....	0.66	
Sargents	.....	.....	.....	T.	
Seibert	.....	.....	.....	1.75	
Silt	87	33	58.4	0.13	
Springfield	.....	.....	.....	3.35	
Strickler Tunnel	.....	.....	.....	2.20	25.5
Trinidad	89	34	59.2	2.20	
Troutvale	80	19	46.1	0.75	4.5
Twinlakes	.....	.....	.....	T.	
Vilas	.....	.....	.....	3.02	
Wagon Wheel	75	19	45.1	1.15	
Wallet	.....	.....	.....	1.06	
Westcliffe	76	24	49.1	1.55	1.5
Wray	92	39	62.6	0.61	
Yuma	.....	.....	.....	1.39	
Connecticut.					
Bridgeport	92	31	58.2	2.90	
Canton	92	23	54 8	6.05	T.
Colchester	91	26	56.8	3.93	T.
Falls Village	.....	.....	...	5.58	T.
Hartford *b*	91	32	57.3	5 08	
Hawleyville	90	27	57.4	5.98	
Middletown	94	25	57.6	3.62	
New London	91	34	58.6	4.84	
North Grosvenor Dale	93	24	55.1	5.84	
Norwalk	96	28	58 8	3.62	
Southington	91	25	57.2	5.15	
Storrs	90	25	55.2	4.91	
Voluntown	90[4]	24[4]	55.6[4]	4 48	
Wallingford	.....	.....	.....	4.35	
Waterbury	94	26	58.1	4.39	T.
West Cornwall	86	27	54.0	5.13	0.2
West Simsbury	.....	.....	.....	5.44	T.
Delaware.					
Milford	.....	.....	.....	2.79	
Millsboro	96	39	64.0	4.93	
Newark	92	33	61 7	2.37	
Seaford	95	39	64.8	2.99	
Wyoming	103	31	65.6	2.42	
District of Columbia.					
Distributing Reservoir *5	90	45	66.9	3.13	
Receiving Reservoir *5	88	45	66.4	2.68	
West Washington	95	35	64.5	4.55	
Florida.					
Archer	92	53	75.6	2.65	
Bartow	95	57	77.0	4.28	
Brooksville	92	58	75.5	4.77	
Carrabelle	96	56	76.4	0.90	
Clermont	93	64	78.4	4.10	
Dalkeith	91	51	75 5	4 28	
De Funiak Springs	92	49	74.2	4.63	
Deland	93	56	75.0	.....	
Ernestville	92	59	76.9	5.67	
Eustis	93	59	76.9	4.25	
Federal Point	90	58	73.0	3.67	
Fort Meade	93	60	76.8	4.93	
Gainesville	94	58	76.4	4.03	
Huntington	92	56	74.0	2.98	
Hypoluxo	90	68	77.3	7.03	
Inverness	88	58	74.3	4.54	
Jasper	90	55	74.0	1.40	
Kissimmee	93	60	76.1	5.84	
Lake Butler	.....	.....	.....	1.66	
Lake City	91	52	75.2	2.23	
Macclenny	94	49	74.7	0.68	
Manatee	89	55	75.6	4.13	
Marianna	90	49	73.4	1.29	
Merritt Island	89	66	77.2	3.63	
Middleburg	24	48	71-0	2.37	
Myers	90	64	77.0	4.65	
New Smyrna	95	55	74.2	5.87	
Ocala	91	53	75.1	0 72	
Orange City	92	60	77.8	3.92	
Orlando	90	61	75.9	4.72	
Plant City	92	56	76 6	7.56	
St. Andrews	90	51	74 4	2.43	
St. Francis	90	54	73 2	4 06	
Sebastian	90	61	76.3	7.80	
Florida—Cont'd.	°	°	°	*Ins.*	*Ins.*
Stephensville *1	90	50	73.0	0.55	
Tallahassee	88	55	74.2	2.06	
Tarpon Springs	85	57	74.6	5.03	
Wausau	92	47	74.0	3.08	
Georgia.					
Adairsville	87	40	68 6	4 28	
Albany	95	50	75 6	0.62	
Allapha	86	49	71 5	2.00	
Allentown	92	44	72.0	2.59	
Americus	90	47	73 2	1.64	
Athens *b*	92	46	70.0	2 97	
Bainbridge	89	53	74.6	2 29	
Bellville	.....	.....	.....	0.66	
Blakely	90	50	73.6	1.13	
Camak	92	50	71.6	2.66	
Canton	.....	.....	.....	1 36	
Carlton	.....	.....	.....	4 36	
Cedartown	87	43	68.6	1.65	
Clayton	89	37	64.9	2 07	
Columbus	90	51	73.8	1.02	
Covington	95	44	71.2	2.21	
Dahlonega	91	35	68.0	3.08	
Diamond	89	32	65.2	4.13	
Dublin	.....	.....	.....	1.39	
Eastman	90	49	72 7	0.92	
Elberton	92	50	71.3	5.44	
Fitzgerald	89	47	72 6	3 70	
Fleming	89	45	71.0	5.35	
Forsyth	89	49	71 8	1.67	
Fort Gaines	90	49	73 4	3.85	
Franklin	89	50	71.2	4.44	
Gainesville	85	42	66.5	1 31	
Gillsville	92	38	67.0	2.94	
Greenbush	89	38	67 2	4.40	
Griffin	92	49	69.9	3.32	
Harrison	90	45	70.8	3.69	
Hawkinsville	.....	.....	.....	2.32	
Hephzibah	.....	.....	.....	1.40	
Jesup	90	50	72 8	1.43	
Lost Mountain	90	44	69.3	3.07	
Louisville	90	53	71.9	1.55	
Lumpkin	89	52	73.4	1.12	
Marshallville	.....	.....	.....	1.10	
Mauzy	92	42	73.4	4.55	
Millen	92	46	71.6	2.59	
Morgan	89	45	70.8	0.51	
Naylor	92	50	73.9	1.05	
Newnan	90	46	70.2	3 51	
Oakdale	.....	.....	.....	2 48	
Point Peter	94	42	68 8	3.47	
Poulan	88	44	71.1	1.96	
Putnam	91	44	72.2	1.23	
Quitman	92	47	73 5	3.16	
Ramsey	88	38	67.4	2.08	
Resaca	.....	.....	.....	1.87	
Rome	89	43	69.2	1.77	
Statesboro	92	47	72.7	3.01	
Talbotton	91	42	71.2	0.85	
Tallapoosa	88	39	67.6	1.99	
Thomasville	90	50	74.7	3.49	
Toccoa	92	44	69.0	1.77	
Union Point	89	48	68.9	2.39	
Valona	.....	.....	.....	4.01	
Washington	89	50	70.8	3.21	
Waycross	94	48	74.4	2.45	
Waynesboro	89	46	69 2	1.36	
Westpoint	90	45	72.0	0.67	
Whiteoak	89	50	72.0	1.67	
Idaho.					
Albion	81	29	54.2	0.77	
American Falls	85	29	54 8	0.90	
Atlanta	75	27	49.8	2.09	
Blackfoot	88	29	57.1	0.98	
Burnside	78	29	52.1	0.85	
Challis	85	32	57.4	0.86	
Chesterfield	80	24	50.9	1.37	T.
Downey	84	21	55.6	0.04	
Fort Sherman	84	32	54.0	2.84	
Forney	88	25	51 6	3.02	T.
Garnet	100	38	65.9	1.47	
Hagerman	96	35	62.5	0.68	
Hailey	92	27	58.0	1.55	
Idaho City	87[f]	28[f]	55.8[f]	2 25	
Kootenai	72	33	50 6	2.88	
Lake	70	30	48.5	1.00	5.0
Lakeview	82	36	55 7	3.28	
Lewiston	84	38	60 0	2.16	
Lost River	83[d]	32[e]	53 6[e]	1.29	
Marysville	82[b]	18[b]	49.8[b]	1.08	
Moscow	79	27	54 3	3.27	
Murray	80	30	52.6	3.62	
Oakley	88	30	56.2	0.50	
Ola	86	31	57.5	2 63	
Paris	88	20	53 6	0.35	
Payette	90	40	62.8	2.63	
Pollock	88	36	58.2	3.33	

TABLE II.—*Climatological record of voluntary and other cooperating observers*—Continued.

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Idaho—Cont'd.	°	°	°	*Ins.*	*Ins.*
Priest River	82	32	55.0	2.47	
St. Maries	84	35	56.4	3.84	
Salubria	84	29	56.2	2.11	
Soldier	80	22	51.6	0.80	T.
Swan Valley	82	21	52.3	1.22	1.0
Weston	83	31	55.4	1.30	
Illinois.					
Albion	89	34	67.0	5.20	
Alexander	89	37	65.2	2.75	
Ashton	89	28	61.4	5.80	
Astoria	87	33	63.7	2.72	
Aurora *a*	91	32	62.8	4.17	
Beardstown				4.44	
Bloomington	93	34	66.0	5.40	
Bushnell	91	38	66.8	4.12	
Cambridge	87	36	63.2	4.41	
Carlinville	89	36	66.2	4.85	
Carlyle				6.25	
Centralia	91	33	68 7	3.47	
Charleston	92	32	66.4	4.00	
Chemung	88	27	59.4	1.78	
Chester				4.45	
Cisne	89	35	65.8	4.24	
Coatsburg	90	36	65.2	4.79	
Cobden	89	36	68.0	6.57	
Danville	94	31	64.6	5.45	
Decatur	92	34	65.0	4.78	
Dixon	89	34	62.8	5.25	
Dwight	90	31	62.8	3.72	
Effingham	89	33	66.2	3.41	
Elgin	88	30	61.2	2.98	
Equality	91	36	67.4	3.89	
Flora	88	35	66.4	4.95	
Friendgrove *b* 1	92	40	69.1	4.40	
Galva	87	32	62.8	4.28	
Glenwood	92[a]	33[a]	64.4[f]	2.87	
Grafton				6.67	
Grayville	90	40	69.2	3.96	
Greenville	89	40	67.0	7.63	
Griggsville	89	34	66.1	4.20	
Halfway	88	36	68.0	3.09	
Halliday	90	34	68.0	3.27	
Henry	88	33	63.8	4.76	
Hillsboro	89	37	65.1	5.14	
Joliet	89	34	62.2	4.27	
Kishwaukee	88	30	61.9	3.46	
Knoxville	88	31	62.1	3.97	
Lagrange	89	34	60.6	3.78	
Laharpe	89	38	64.0	3.50	
Lanark	89	25	61.3	4.23	
Loami				3.33	
McLeansboro	89	35	67.3	5.34	
Martinsville	90	34	66.0	4.58	
Martinton	89	32	62.6	4.22	
Mascoutah	87	37	63.4	5.50	
Mattoon	90	38	67.6	4.02	
Minonk	91	30	62.8	3.09	
Monticello	89	32	63.4	5.11	
Morrisonville	88	38	64.9	2.93	
Mount Carmel				4.09	
Mount Pulaski	88	34	66.2	2.66	
Mount Vernon	88	35	65.5	5.37	
New Burnside	93	35	69.4	3.90	
Olney	91	33	66.4	3.14	
Ottawa	91	35	64.3	5 60	
Palestine	90	31	65.7	3.86	
Pana	88	37	65.2	2.30	
Paris	91	34	65.8	2.17	
Peoria *a*				5.16	
Peoria *b*	91	36	65.2	5.54	
Philo	91	30	63.0	6.19	
Plumhill	85	37	65.8	4.86	
Rantoul	90	35	64.0	4.69	
Raum	90	40	69 4	5.97	
Riley	88	30	61.3	3.08	
Robinson	89	32	65.8	5.26	
Roundgrove	89	31	62.0	6.33	
St. Charles	89[a]	38[a]	64.1[a]	3.27	
St. John	91	35	68.2	4 85	
Scales Mound	88	25	60.8	3.80	
Shobonier	90	41	66.0	8.02	
Strawn	88	33	63.2	3.76	
Streator	91	32	62 4	2.44	
Sullivan	89	32	65.3	2.82	
Sycamore	86	29	61.0	2.83	
Tilden	87	33	65.6	2.79	
Tiskilwa	89	33	63.0	4.23	
Tuscola	92	32	64.2	5.46	
Walnut	90	34	64.2	3.88	
Wheaton *a* 3	87	40	64.6	3.33	
Winchester	89	40	65.2	3.96	
Winnebago	88	28	61.0	4.96	
Yorkville	88	30	61.8	4.17	
Zion	89	31	62.5	3.14	
Indiana.					
Anderson	90	32	64.8	4.82	

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Indiana—Cont'd.	°	°	°	*Ins.*	*Ins.*
Angola	86	31	61.8	2.23	
Auburn	93	28	63.4	2 44	
Bedford		35		3.82	
Bloomington	89	30	65.6	4.79	
Bluffton	93	29	64.3	3.34	
Boonville	92	35	65.9	3.34	
Butlerville	90	33	64.6	3.64	
Cambridge City	90	28	62.2	4.79	
Columbus	91	31	63 2	2.79	
Connersville	92	33	63.4	6.17	
Crawfordsville				5.57	
Delphi	92	32	64.4	4.38	
Edwardsville *b* 1	88	42	68.4	5.68	
Fairmount	93	30	64.4	5.77	
Farmland	89	32	62.4	4.42	
Fort Wayne	91	30	63.6	3.40	
Franklin *b* 1	91	40	66.4	5.48	
Greencastle	87	36	65.0	6.34	
Hammond	88	33	58.4	4.15	
Hector	92	30	65.6	3.04	
Huntington	92	34	64.2	5.77	
Jeffersonville	90	40	66.6	5.56	
Knightstown	92	32	64.4	6.08	
Kokomo	90	34	65.9	5.79	
Lafayette	90	32	64.3	6.89	
Laporte	93	32	63.7	2.14	
Logansport	91	35	65.8	2.60	
Madison *a*	92	37	66.2	4.58	
Madison *b*				3.88	
Marengo	91	33	65.4	5.34	
Marion	92	30	64.6	3.94	
Markle	90	31	63.5	4.40	
Mauzy	89	32	63.7	6.62	
Mount Vernon				4.08	
Northfield	89	29	63.2	7.39	
Paoli	91	33	66.4	4.19	
Peru	92	33	62.8	2.35	
Prairie Creek	93	20	66.3	5.24	
Princeton	92	33	65.9	4.75	
Rensselaer	91	36	64.8	4.05	
Richmond	90	29	60.7	7.26	
Rockport	91	44	69.1	4.71	
Rockville	90	32	64.7	5.91	
Salem	94	31	65.3	3.41	
Scottsburg	90	38	66.2	3.44	
Seymour	91	38	66.8	5.05	
Shelbyville	90	36	66.0	6.56	
South Bend	89	31	62.9	1.74	
Syracuse	91	32	64.1	2.58	
Terre Haute	91	34	66.1	3.29	
Topeka	84	33	61.2	2.25	
Valparaiso	88	36	61.8	4.00	
Veedersburg	94	29	65.6	5.80	
Vevay	90	38	66.2	5.35	
Vincennes	96	35	66.4	3.78	
Washington	94	35	65.7	4.14	
Winamac	90	31	63.4	3.74	
Worthington	93	30	65.9	7.29	
Indian Territory.					
Claremore	91	43	68.7	5.98	
Fairland	87	44	68.6	5.62	
Hartshorne	90	43	70.7	1.50	
Healdton	89	41	68.5	6.23	
Lehigh	93	45	70.5	2.28	
Muscogee	88	44	67.2	4.14	
Pauls Valley	89	47	68.7	5.39	
Ryan	90	52	70.5	7.39	
South McAlester				3.05	
Tahlequah	87	42	67.2	4.70	
Tulsa				5.77	
Wagoner	93	41	68.9	7.05	
Webbers Falls	88	45	70.3	4.14	
Iowa.					
Afton	90	33	64.4	4.42	
Albia	89	34	63.2	4.38	
Algona *b* 1	92	36	64.1	1.04	
Alta *a*	91	27	62.8	3.00	
Amana	90	34	63.8	4.18	
Ames *b*	90	33	64.4	4.36	
Ames (near)				3.65	
Atlantic	88	25	63.2	2.35	
Audubon	87	29	62.4	3.48	
Bancroft	91	25	61.3	1.15	
Batavia				3.41	
Baxter	91	29	64.4	5.29	
Bedford	94	28	64.8	5.40	
Belknap	87	35	63.8	5.94	
Belleplaine	90	33	63.1	1.67	
Bonaparte	87	35	64.1	3.66	
Britt	93	25	61.3	2.99	
Buckingham				2.09	
Burlington	87	37	65.5	3.81	
Bussey				2.88	
Carroll	90	26	64.3	1.90	
Carson				2.01	
Cedarfalls				1.81	

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Iowa—Cont'd.	°	°	°	*Ins.*	*Ins.*
Cedar Rapids	93	35	65.6	3.13	
Centerville	90	35	64.6	4.83	
Charlton	86	32	63.3	3.47	
Charles City	90	29	62.4	2.87	
Chillicothe				5.10	
Clarinda	92	32	65.0	4.46	
Clearlake	93	28	62.8	3.30	
Clinton	90	31	63.0	4.77	
College Springs	95	30	65.1	3.85	
Coon Rapids	89	32	64.0	2.99	
Corning	88	30	62.8	3.97	
Council Bluffs	91	32	65.4	2.93	
Cresco	88	26	60.6	4.72	
Cumberland				2.78	
Danville				4.22	
Decorah	89	30	61.5	3.34	
Delaware	89	31	61.8	2.25	
Denison	89	29	63.7	2.37	
Desoto	91	35	65.9	4.14	
Dows	90	25	62.2	4.75	
Eldon	91	35	65.2	5.74	
Elkader	94	29	63.4	4.13	
Emerson				2.18	
Emmetsburg				2.52	
Estherville	92	28	59.8	2.06	
Fairfield	88	35	64.0	5.31	
Fayette	90	26	61.3	1.95	
Fonda	93	26	64.2	4.73	
Forest City	89	26	62.0	2.47	
Fort Dodge	92	28	62.9	4.57	
Fort Madison				3.93	
Galva	96	29	63.8	3.54	
Gilman				2.50	
Gladbrook				1.50	
Glenwood	89	31	64.7	2.40	
Grand Meadow *b* 1	86[c]	32	60.8	2.53	
Greene	93	28	63.4	1.26	
Greenfield	92	28	64.4	2.99	
Grinnell	89	31	63.0	4.94	
Guthrie Center	88	30	63.3	3.34	
Hamburg				3.09	
Hampton	93	29	63.2	2.47	
Harlan	89	27	63.6	3.09	
Hawkeye				3.71	
Hedrick	90	32	63.2	4.53	
Hopeville	88	32	63.0	4.64	
Hoprig				1.05	
Humboldt	91	28	63.4	2.38	
Independence	89	30	61.6	1.74	
Indianola	88	31	64.6	4.17	
Iowa City	90	35	64.1	4.31	
Iowa Falls	92	27	63.2	1.79	
Keosauqua	90	36	63.7	3.61	
Knoxville	91	40	65.8	3.55	
Lacona				3.38	
Lansing	97	29	63.4	4.35	
Larrabee	92	28	63.4	6.30	
Leclaire				4.56	
Lemars	89	28	63.2	0.96	
Lenox	86	29	63.0	5.71	
Logan	90	27	63.0	1.97	
Maple Valley				2.50	
Maquoketa	87	30	61.2	6.98	
Marshalltown	92	31	64.7	3.08	
Mason City	90	24	60.3	2.90	
Melrose				1.82	
Monticello	90	30	61.4	2.75	
Mooar	87	35	62.8	6.50	
Mountayr	89	30	64.0	4.11	
Mount Pleasant	92	34	63.6	4.80	
Mount Vernon *a* *b* 1	89	38	64.0	4.35	
Mount Vernon *b*	92	32	64.0	4.22	
Murray				5.67	
New Hampton	88	27	61.2	2.29	
Newton	89	32	64.0	4.03	
Northwood	88	29	62.2	2.31	
Odebolt	94	26	65.2	1.57	
Ogden	89	27	63.8	4.82	
Olin	88	32	61.8	3.08	
Onawa	92	30	65.8	3.66	
Osage	88	28	60.8	2.98	
Osceola	92	32	64.0	3.96	
Oskaloosa	88	32	63.6	3.07	
Ottumwa	89	38	66.6	6.20	
Ovid	86	30	63.1	5.75	
Pacific Junction	90	28	64.0	2.07	
Pella	92[d]	34[d]	65.2[d]	2.29	
Plover	93	24	64.0	2.69	
Primghar	92	35	65.8	2.75	
Redoak	89	33	65.4	2.56	
Ridgeway	93	29	62.7	0.55	
Rockwell City	93	26	63.2	1.78	
Ruthven	90	26	62.6	1.78	
Sac City	90	28	63.0	1.52	
Scranton	90	32	64.2	2.83	
Sheldon	89	27	61.4	1.09	

TABLE II.—*Climatological record of voluntary and other cooperating observers*—Continued.

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Iowa—Cont'd.	°	°	°	*Ins.*	*Ins.*
Sibley	94	22	62.2	1.29	
Sigourney	92	33	65.5	4.62	
Sioux Center	93	30	64.3	2.20	
Storm Lake	87	29	62.7	1.47	
Stuart	89	31	64.6	3.84	
Thurman	89	31	65.6	2.81	
Toledo	98	32	65.2	2.57	
Villisca	92	28	66.8	4.22	
Vinton *1	90	39	63.2	1.68	
Wapello	92	32	65.1	3.89	
Washington	88	34	62.8	2.80	
Washta				2.81	
Waterloo	93	31	63.6	1.37	
Waverly	91	31	63.4	1.35	
Westbend *1	93	33	62.9	2.34	
Westbranch	93	30	63.6	3.91	
West Union				2.29	
Whitten	90	27	62.4	1.48	
Wilton Junction	89	34	63.3	4.59	
Winterset	90	32	64.5	4.34	
Kansas.					
Abilene	92	37	66.8	4.56	
Achilles	92	29	61 9	0.55	
Altoona				4.51	
Anthony				2.94	
Atchison *a*	88	36	66.0	2.58	
Baker	89	37	65.5	3.85	
Beloit	91	34	64.2	2.55	
Burlington	89	37	66.4	5.24	
Campbell	92	33	65.5	3.74	
Chanute	90	40	67.6	5.35	
Coburn *1	88	36	64.0	8.10	
Colby	90	30	61.7	0.20	
Columbus	88	40	66.8	6.27	
Coolidge	88	39	62.6	1.50	
Cunningham	88	36	65.4	3.86	
Delphos	90	35	65.7	3.17	
Dresden	89	37	62 0	0.61	
Ellinwood	89	36	64.2	3.94	
Englewood	90	38	66.0	1.22	
Eureka				6.18	
Fallriver	89	40	57.8	3.82	
Fanning	91	32	65.6	3.84	
Frankfort	92	34	65.4	4.02	
Garden City	94	38	64.8	2.05	
Garfield				2.00	
Gove *1	90	43	65.5	1.10	
Grenola	89	38	67.0	5.25	
Hays	90	37	63.1	3.43	
Horton	89	36	65.6	3.68	
Hoxie	93	38	64.2	1.28	
Hutchinson	90	37	66.2	3.89	
Independence	91	41	68.9	4.27	
Lakin	93	38	64.4	1.19	
Lawrence	86	39	66.3	4.70	
Lebanon	90	32	62.0	2.50	
Lebo	88	38	66.8	4.87	
Little River	89	43	64.3	3.46	
Macksville	86	36	63.4	4.25	
McPherson	91	35	65.4	5.38	
Madison	89	38	66.5	5.65	
Manhattan *b*	91	39	67.6	4.06	
Manhattan *c*	91	36	67.4	3.94	
Marion	88	38	66.2	6.30	
Meade				2.45	
Medicine Lodge	92	45	68.0	4.80	
Minneapolis	88	33	64.4	3.31	
Moran	85	39	66.5	2.98	
Mounthope *1	86	36	66.3	3.73	
Ness City	89	38	63.2	3.16	
Newton	89	37	66 2	5.43	
Norwich	87	38	65.5	4.16	
Oberlin				1.10	
Olathe	91	43	66.8	4.08	
Osage City	88	34	67.3	4.84	
Osborne				3.82	
Oswego	92	40	68 8	5.94	
Ottawa	88	38	66.4	4 09	
Phillipsburg	92	40	64.8	1.08	
Rome	89	35	66.8	4.89	
Russell	94	39	66.0	3.40	
Salina	89	35	65.2	2.99	
Scott	92	31	64.1	0.97	
Sedan	88	40	66.4	6.67	
Seneca	88	34	63.3	4 13	
Toronto	88	40	65.1	3.10	
Tribune	92	36	60.0	0.45	
Ulysses	95	35	65 2	1.00	
Valley Falls	89	35	66 6	2.98	
Viroqua	93	42	65.0	1.36	
Wakeeney (near)				2.10	
Wallace				0.36	
Wamego *1	90	42	66.1	2.76	
Winfield	88	40	67.8	4.05	
Yates Center	94	38	66.7	3.58	

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Kentucky.	°	°	°	*Ins.*	*Ins.*
Alpha *3	94	42	67.6	0.38	
Bardstown	95	34	67.2	4.19	
Blandville	89	39	68.4	4.71	
Bowling Green	92	39	68.2	4.01	
Burnside				1.91	
Canton *1	91	46	69.3	4.17	
Carrollton	90	46	68.3	5.68	
Catlettsburg	92	31	64.3	3.77	
Earlington	95	37	68.2	6.19	
Edmonton	93	33	67.0	2.66	
Eubank	90	30	63.8	2.45	
Falmouth				3.50	
Frankfort	89	37	65.2	3.29	
Georgetown	88	36	65.6		
Greensburg	93	32	65.9	3.41	
Henderson	92	43	68.5	3.80	
Hopkinsville	90	36	66.0	3.22	
Irvington	89	37	66.2	2.88	
Jackstown	91	39	63.8	1.27	
Leitchfield	89	35	64.9	4.58	
Loretto	90	30	64.7	4.11	
Marrowbone	92	32	65.0	1.13	
Maysville	96	32	66.1	3.43	
Middlesboro	89	31	63.0		
Mount Hermon	88	36	65.8	2.25	
Mount Sterling	92	34	65.4	3.09	
Owensboro	90	40	67.2	4.41	
Owenton	91	36	66.2	5.23	
Paducah *a*				4.58	
Paducah *b*	95	43	70.4	5.05	
Pikeville	91	33	65.8	4.06	
Princeton	92	37	68.4	4 04	
Richmond	92	35	65.9	2.17	
St. John	89	33	64.6	3.25	
Scott	90	35	65.2	3.26	
Shelby City	93	31	65.4	2.23	
Shelbyville	95	36	67.2	6.11	
Vanceburg	94	32	61.6	4 25	
Warfield	92	35	65.0	5.28	
Louisiana.					
Abbeville	88	55	74.3	8.20	
Alexandria	95	49	74.6	4.90	
Amite	91	49	73 6	4.68	
Bastrop	93	45	73.2	3.15	
Baton Rouge	91	53	74.6	2.62	
Burnside	91	50	73.6	7.02	
Calhoun	88	45	72.1	3.41	
Cheneyville	94	50	74.2	4.02	
Clinton	88	49	73.0	5.91	
Como	92 *4*	44 *4*	70.7 *4*	3 84	
Donaldsonville	88	52	72.8	5.83	
Emilie	88	56	74.2	3.14	
Franklin	93	57	75.6	7.50	
Grand Coteau	92	54	74.8	4.29	
Hammond	94	50	74.4	2.86	
Houma	89	62	76.6	6.60	
Jeanerette	93	54	75.4	6.30	
Jennings	91	54	73.3	5.57	
Lafayette	95	53	74.6	3.31	
Lake Charles	90	55	75.0	6.75	
Lake Providence	91	49	73.3	4.15	
L'Argent	89	52	72.3	4.30	
Lawrence	89	58	75.4	3.35	
Libertyhill	95	46	73.3	2.96	
Mansfield	90	44	71.4	4.01	
Melville	92	54	75.1	0.55	
Minden	94	45	72.4	3.43	
Monroe	89	52	73.5	5.59	
Montgomery	89	50	72.5	4.38	
New Iberia	90	56	74.1	4.42	
Oakridge	93	47	72.0	5.06	
Opelousas	93	52	74.6	1.95	
Oxford	89	45	72.0	6.18	
Paincourtville	91	53	75.9	4.30	
Plain Dealing	91	43	71.2	3.12	
Prevost	94	56	76.5	3.96	
Robeline	90	52 *1*	74 9 *a*	4.50	
Ruston	90	46	71.7	3.74	
Schriever	92	52	75.0	6.07	
Shellbeach	87	61	73.4	9.28	
Southern University	96 *4*	51 *c*	72.7 *4*	6.29	
Sugar Ex. Station	90	58	75.2	4.53	
Sugartown	91	55	75.4	6.57	
Venice	87	61	74.8	8 38	
Wallace	92	54	75.6	4.30	
Maine.					
Bar Harbor	85			6.07	
Belfast *6	81	35	52.3	7.18	
Bemis	86	30	45.8	5.55	3.0
Calais	88	27	49.2	8 11	
Carmel	84	28	49 6	7.25	
Cornish *1	87	31	51.0	3.34	
Fairfield	81	26	50.4	5.18	
Farmington	85	21	49.4	5.12	
Flagstaff	85	21	47.2	3.55	
Gardiner	87	26	50.8	5.42	

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Maine—Cont'd.	°	°	°	*Ins.*	*Ins.*
Kineo	78	25	47.3	3.49	T.
Lewiston	88	29	51.2	4.04	T.
Mayfield	84	22	48.0	5.84	T.
North Bridgton	87	26	50.5	3.93	T.
Orono	83	26	49.4	8.24	T.
Petit Manan *1	62	30	46.5		
Rumford Falls	85	26	48.6	4.57	T.
Winslow	84	22	50.6	6.32	
Maryland.					
Annapolis	93	33	65.3	1 60	
Bachmans Valley	90	33	60.5	2.76	
Boettcherville	96	26	63.6	2.76	
Boonsboro *a*	96	32	64.2	1.30	
Cambridge	93	42	66.1	1.65	
Charlotte Hall	95	35	64.2	1.79	
Chase	96	35	61.5	4.05	
Chestertown	88	41	64.2	2.63	
Chewsville	92	29	61.2	2.52	
Coleman	93			3.04	
Collegepark	93	37	63.8	3.39	
Cumberland *a*	82	39	63.5	2.68	
Cumberland *b*				2.00	
Darlington	92	38	62.9	3.17	
Deerpark	88	20	55.4	2.63	
Denton	98	34	64 7	1.91	
Easton	91	35	63.2	1.91	
Ellicott City	91	33	61.6	1.90	
Fallston	92	34	62.5	2.66	
Frederick	94	37	64.2	1.55	
Frostburg	90	31	61.8	2.28	
Grantsville	88	25	57.2	1.67	
Greatfalls	93	34	63 8	1.75	
Greenspring Furnace	94	32	63.0	3.04	
Hagerstown	96	33	64.1	2.60	
Hancock	99	29	63.4	2.32	
Harney				1.26	
Jewell	93	40	64.0	2.01	
Johns Hopkins Hospital	94	38	63.5	1.15	
Laurel	95	34	63.4	2.67	
McDonogh	90	38	64.2	3.30	
Mount St. Marys Coll	93	33	63.1	2.00	
Newmarket	92	35	63.4	2.20	
Pocomoke	92	40	65.0	4.06	
Prince Fredericktown				1.19	
Princess Anne	90	39	63.2	2.79	
Queenstown	91	39	64.3	2.51	
Rockhall *a*	94	39	64.4	2.44	
Rockhall *b*	91	39	63.6	2.82	
Smithsburg *a*	93	28	61.6	2.59	
Smithsburg *b*	94	32	63.4	1.94	
Solomons	95	43	65.6	1.36	
Sudlersville	90	37	62.9	2.02	
Sunnyside	87	23	56.3	3.11	
Takoma Park	92	35	64.0	3.10	
Taneytown	91	34	61.2	1.56	
Van Bibber	93	36	62.7	3.60	
Westernport	90	28	60 0	2.35	
Westminster	91	33	61.7	2.36	
Woodstock	93	38	64.2	2.30	
Massachusetts.					
Attleboro				6.17	
Bedford	92	27	53.9	4.22	
Bluehill (summit)	93	28	54.6	5.61	T.
Cambridge	93	28	55.6	4.93	
Chestnuthill	95	28	56.0	5.41	T.
Cohasset				5 39	T.
Concord	94	25	52.8	3.81	T.
Dudley *1	89	32	56.4	4.05	
East Templeton *1	92	30	53.7	2.15	T.
Fallriver	90	32	56.0	5.50	
Fiskdale				4.61	
Fitchburg *a* *1	90	34	54.2	3.10	
Fitchburg *b*	92	27	54 0	2.83	T.
Framingham	89	29	54.6	4.22	
Groton	91	24	52.8	3.69	
Hyannis *1	81	32	53.0	2.76	
Jefferson				4.62	
Lawrence	93	28	53.9	3.90	
Leeds	91	22	55.4	5.04	T.
Leominster				4.13	T.
Longplain				5.27	
Lowell *a*	90	28	54.2	3 78	
Lowell *b*	93	26	53.5		
Ludlow Center	88	20	52.1	4.41	
Middleboro	89	24	53.4	5.58	
Monson	92	24	55.4	4.90	
New Bedford *a*	86	35	55.4	5.31	
Pittsfield	85	23	54 4	2.99	
Plymouth *1	90	34	53.5	4.99	
Princeton				4.65	
Salem				5.50	
Somerset *1	90	26	57.3	5.55	
South Clinton				3.82	
Springfield Armory	93	29	56.4	5.07	
Sterling				4.26	
Taunton *c*	90	23	53.6	6.87	

TABLE II.—*Climatological record of voluntary and other cooperating observers.*—Continued.

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Massachusetts—Cont'd.	°	°	°	*Ins.*	*Ins.*
Webster	.....	.....	.....	5.72	
Westboro	94	28	55.8	4.46	
Weston	91	26	58.8	4 97	
Williamstown *[1]	84	35	55.3	2 43	T.
Winchendon	.....	.....	.....	2.92	
Worcester *b*	89	29	54.6	3.47	
Michigan.					
Adrian	87	26	60.1	3.33	T.
Agricultural College	85	26	56.8	4.17	T.
Allegan	.....	.....	.....	3.85	
Alma	87	22	57.6	2.60	T.
Ann Arbor	87	29	60.1	4.91	
Arbela	84	27	57.7	5.20	
Baldwin	85	14	55.2	1.25	
Ball Mountain	87	2[illegible]	58 6	3.57	T.
Battlecreek	87	30	60 8	4.34	0.3
Bay City	85	28	57.2	2.56	T.
Berlin	85	26	56.5	3.73	0.6
Berrien Springs	87	33	61.2	4.46	
Big Point Sable *[2]	72	34	51.0	.....	
Big Rapids	84	20	57.4	1.97	
Boon	82	14	53.2	3 81	
Calumet	88	29	52.4	1.15	
Charlevoix	87	24	51.8	1.09	T.
Cheboygan	82	22	51.8	1.15	T.
Clinton	88	25	61.2	3.86	2.0
Coldwater	88	34	63.0	2.04	
Dundee	87	28	60 2	3.36	T.
Eagle Harbor	82	24	49.6	1.16	
East Tawas	86	24	56 8	2.00	
Eloise	88	29	60.4	2.87	
Fairview	85	30	61.2	2.86	T.
Fitchburg	85	25	59.4	5.73	2.5
Frankfort	76	30	51.6	0.80	
Gladwin	85	22	56.4	2.20	
Grand Rapids	88	29	61.8	2.59	
Grape	90	28	60.6	3.17	T.
Grayling	87	21	56.5	2.15	T.
Hanover	86	26	60.1	2.17	0.5
Harbor Beach	85	30	54.0	2.11	
Harrisville	90	24	52.0	2.64	
Hart	84	30	57.8	2.85	
Hastings	86	25	60.0	3.16	1.0
Hayes	87	27	56.2	3.10	
Highland Station	.....	.....	.....	4.35	T.
Hillsdale	87	25	60.8	2.35	
Holland *[2]	77	37	56.8	.....	
Howell	.....	.....	.....	4.13	T.
Humboldt	89	17	50.3	2.17	
Ionia	85	26	60.0	2.75	
Iron Mountain	90	25	55.0	2.80	
Iron River	87	17	51.6	1.22	T.
Ishpeming	89	21	53.4	2.54	
Ivan	85	18	54.2	1.82	
Jackson	91	29	61.9	3.06	
Jeddo	85	27	54.8	2.34	0.5
Kalamazoo	85	30	60.9	4.01	
Lake City	83	23	53.4	3.15	
Lansing	84	31	59.6	4.25	T.
Lapeer	85	32	59.2	2.40	
Lathrop	90	22	51.6	2.34	T.
Lincoln	85	24	53.7	.....	
Ludington	80	28	55.3	2.56	
Mackinac Island	82	26	50.8	1.07	T.
Mackinaw	83	24	51.4	1.64	
Madison	91	27	62.3	2.58	0.3
Mancelona	98	20	55.7	0.44	
Manistee	83	28	53.4	2.27	
Manistique	76	25	49.8	1.08	
Middle Island *[2]	80	31	50.8	.....	
Midland	86	30	60.8	3.85	
Mottville	88	28	60.0	1.55	
Mount Clemens	88	28	59.0	2.35	
Mount Pleasant	83	25	57.5	3.36	
Muskegon	80	32	56.2	3.57	
Newberry	86	20	51.0	0 85	
Northport	86	26	54.2	0.17	
Old Mission	88	29	55.9	0.90	
Olivet	84	30	60.0	9.80	0.8
Omer	.....	.....	.....	2.40	
Ontonagon	93	30	52.2	0.89	
Ovid	85	25	59.2	4.44	
Owosso	95	25	60.0	3.53	
Petoskey	88	24	51.2	0.72	T.
Port Austin	85	26	56.2	1.19	
Reed City	86	24	58.2	2.10	
Romeo	86	31	59.2	3.94	
Saginaw	87	25	58.8	4.09	
St. Ignace	86	26	50.8	1.35	T.
St. Johns	85	27	59.8	4.18	
St. Joseph	88	31	58.6	3.50	
Sidnaw	91	20	54.4	.....	
Somerset	87	27	59.2	2.21	
South Haven	80	37	58.4	2.07	
Stanton *	89	24	62.6	.....	
Thomaston	92	20	52.2	1.03	

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Michigan—Cont'd.	°	°	°	*Ins.*	*Ins.*
Thornville	84	29	59.0	4.61	2.0
Traverse City	88	25	55.2	0.47	
Vandalia	87	32	61.8	3.62	
Vassar	85	33	59 2	4.26	
Vermilion Point *[10]	88	22	49.8	.....	
Wasepi	86	31	61.5	2.96	
Waverly	85	40	63.0	1.77	
West Branch	86	19	55.8	1.62	
Wetmore	87	17	50 2	2.59	
Whitecloud	85	21	59.6	3.09	
Whitefish Point	82	29	47.6	1.18	
Williamston	84	30	60.5	3.12	
Ypsilanti	87	26	58.7	5.45	
Minnesota.					
Ada	96	23	59 0	0.90	
Albert Lea	90	29	62.8	3.52	
Alexandria	91	26	59.2	0.18	
Ashby	91	28	61.3	0 25	
Barnesley	93	23	56.6	0.35	
Bemidji	91	22	57.6	1.27	
Bird Island	93	24	60.4	0.69	
Blooming Prairie	92	26	61.6	0.75	
Brainerd	92	26	58 8	1.26	
Caledonia	85	27	60.2	2.75	
Camden	97	23	60 9	1.12	
Collegeville	89	33	61.3	0.29	
Crookston	94	25	58.9	0.77	
Currie	95[f]	26[e]	62.0[e]	1.80	
Deephaven	.....	.....	.....	0.15	
Detroit City	92	21	57.2	0.81	
Faribault	90	23	61.4	0.15	
Farmington	92	22	61.2	0.23	
Fergus Falls	90	28	60.1	0.12	
Glencoe	89	20	60.4	0.90	
Grand Marais	.....	.....	.....	0.52	
Grand Meadow	91	30	61.4	2.39	
Hallock	98	15	57.8	0.25	
Lake Jennie	91	28	62.4	0.87	
Lakeside	91	25	61.2	0.93	
Lake Winnibigoshish	92	24	58.2	0.87	
Leech[1]	91	30[e]	57.1	0.83	
Long Prairie	92	22	58.6	0.39	
Luverne	90	29	61.5	2.12	
Lynd	92	23	59.8	0.98	
Mapleplain	98	29	62.6	0 31	
Milaca	92	24	58.8	0.00	
Milan	94	24	61.2	0.31	
Minneapolis *a*	92	29	62.0	0.35	
Minneapolis *b*[1]	91[e]	24	61.8	0.31	
Minnesota City *[1]	92	30	61.8	1.65	
Montevideo	95	24	59.6	1.02	
Morris	93	30	59.6	0.60	
Mount Iron	92	18	54.2	1.78	T.
Newfolden	92	17	57.0	0.55	
New London	93	30	59.2	0.90	
New Richland *[1]	94	34	62.6	.....	
New Ulm	98	29	63.0	0.24	
Park Rapids	91	21	57.0	0.21	
Pine River	89	27	56.4	0.30	
Pipestone	90	30	61.2	1.44	
Pleasant Mounds	89	27	61.5	1.21	
Pokegama Falls	90	19	55.0	1.10	
Redwing	.....	.....	.....	0 26	
Reeds	.....	.....	.....	0.90	
Rolling Green	89	29	60.4	2.30	
St. Charles	89	26	59.3	2.22	
St. Cloud	95	30	61.8	0.30	
St. Peter	89	29	62.2	0.32	
Sandy Lake Dam	88	22	55.6	0.62	
Shakopee	92	27	62.4	0.14	
Thief River Falls	.....	.....	.....	0.36	
Tower	94	11	52.0	0.60	
Two Harbors	83	24	44.4	0.74	
Wabasha *[1]	96	35	62.6	1.13	
Willmar	89	26	59.6	1.10	
Worthington	87	32	60.8	0.65	
Zumbrota[1]	90	24	60.4	.....	
Mississippi.					
Aberdeen	90	45	69.9	2.40	
Agricultural College	94	48	73.8	3.88	
Americus	92	51	74.6	2.12	
Austin	88	42	69.7	5.33	
Bay St. Louis	91	56	75.4	3.71	
Biloxi	90	55	76.0	6.77	
Booneville	85	43	68.4	5.28	
Brookhaven	94	45	72.6	2.40	
Canton	90	46	71.7	2.62	
Columbus *b*	88	49	70.8	3.34	
Crystalsprings	94	46	72.3	6.28	
Edwards	92	50	74.2	3.64	
Fayette	88	47	71.5	4.35	
Fayette (near) *[1]	89	58	73.2	.....	
Greenville *a*	90	51	73.5	3.94	
Greenville *b*	90	48	72.8	4.02	
Hattiesburg	90	52	74.4	1.58	
Hazlehurst	99	47	73.0	2.00	

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Mississippi—Cont'd.	°	°	°	*Ins.*	*Ins.*
Holly Springs	90	46	70.2	3.28	
Jackson	91	42	68.0	2.85	
Kosciusko	91	44	71.4	3.40	
Lake	89	42	70.0	0 90	
Leaksville	95	46	73 3	3.84	
Logtown	91	53	74 5	5.91	
Louisville	86	57	71.4	6.56	
Macon	92	46	72.1	2.20	
Magnolia	92	48	74.6	5.13	
Natchez	92	50	74.0	1.50	
Okolona	94	44	71.9	1.71	
Palo Alto	89	49	71.6	5.58	
Port Gibson	90	44	70.7	4 64	
Ripley	89	39	70.6	5.06	
Stonington *[1]	86	52	71.7	.....	
Thornton	.....	.....	.....	3 07	
Tupelo	.....	.....	.....	2.74	
Walnutgrove	88[e]	55[e]	72.8	1 85	
Waynesboro	89	48	71.8	3.23	
Windham	96	44	73.5	1.57	
Woodville	91	50	73.6	5.71	
Yazoo City	94	46	73-8	2.65	
Missouri.					
Appleton City	95	42	68.6	2.68	
Arlington	.....	.....	.....	3.80	
Arthur *[3]	.....	42	66.4	3.23	
Avalon	89	36	65.6	2.76	
Bagnell	.....	.....	.....	2 11	
Bethany	88	34	64.4	3.51	
Birchtree	87	36	65.7	4 23	
Boonville	.....	.....	.....	4.57	
Brunswick	88	39	65.0	2 06	
Carrollton	89	39	66.8	2.25	
Conception	88	35	64.7	4.25	
Cook Station	90	30	66.4	3.35	
Cowgill *[3]	86	38	66.6	4.64	
Downing	.....	.....	.....	7.61	
East Lynne *[3]	.....	39	62.3	2.16	
Edgehill *[3]	86	44	66.9	2.93	
Edwards	91	38	67.1	1.71	
Eldon	89	36	65.9	1.82	
Elmira	89	35	66.2	.....	
Fairport	.....	.....	.....	3.40	
Fayette	89	42	67.1	3.54	
Fulton	88	35	66.2	2.04	
Galena	.....	.....	.....	4.79	
Gallatin *[1]	90	44	65.9	3.03	
Gayoso	96	40	72.2	2 65	
Glasgow	89	37	66.0	2.00	
Gorin	.....	.....	.....	4.73	
Halfway	87	39	66.2	3.70	
Harrisonville	88	39	66.2	2.89	
Hazlehurst	.....	.....	.....	3.32	
Hermann	.....	.....	.....	3.49	
Houston	86	36	65.1	4.32	
Houstonia (near)	.....	.....	.....	2.50	
Irena	.....	.....	.....	4.92	
Ironton	88	31	64.7	6.14	
Jackson *[3]	87	42	64.0	5 50	
Jefferson City	96	35	67.0	2.20	
Kidder	89	34	65.2	4.48	
Lamar	90	44	68.4	2.86	
Lamonte	.....	.....	.....	1.53	
Lebanon	87	42	67.0	4.67	
Lexington	91	38	67.8	1.77	
Liberty	.....	36	...	3.01	
Louisiana	91	37	67.0	4.24	
McCune *[1]	90	43	66.2	4.11	
Macon	90	36	66.4	3.92	
Marblehill	87	31	65.2	7.18	
Marshall	87	37	65.0	2.15	
Maryville	90	35	65.2	6.37	
Mexico	92	37	67.3	1.76	
Miami *[6]	89	43	68.6	2.32	
Mineralspring	84	38	63.8	4.83	
Montreal	87	36	65 8	3.49	
Mount Vernon	90	43	66.5	3.66	
Neosho	87	39	65.5	3.31	
Nevada	.....	.....	.....	5.02	
New Haven	90	40	67.5	2.93	
New Madrid [5]	87	46	69.6	4.58	
New Palestine	88	34	66.1	3.13	
Oakfield	87	41	66 8	4.61	
Olden	81	37	62.3	3.35	
Oregon *a*	87	37	66.1	5.00	
Oregon *b*	91	37	67.3	4.80	
Palmyra *[3]	90	40	68.2	3.74	
Phillipsburg *[1]	85[e]	44	65.0	3 02	
Pickering *[3]	94	30	59.6	6.74	
Pine Hill	.....	.....	.....	5.00	
Poplarbluff	91	40	69.2	5.95	
Potosi	88	29	63 8	3.79	
Princeton	92	34	65 8	3.39	
Richmond	86	40	66.1	3.72	
Rockport	.....	.....	.....	4.04	
Rolla	.....	.....	.....	2.78	

TABLE II.—*Climatological record of voluntary and other cooperating observers*—Continued.

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Missouri—Cont'd.	°	°	°	*Ins.*	*Ins.*
St. Charles	89	41	66.3	4.75	
St. Joseph	.....	.....	.....	2.38	
Sarcoxie *5	.....	46	65.4	1.97	
Sedalia	94	37	66.4	1.77	
Seymour	86	36	64.6	3.84	
Shelbina	.....	.....	.....	5.80	
Sikeston	89	37	67.6	3.19	
Steffenville	87	36	65.3	5.74	
Sublett	89	35	65.3	3.70	
Trenton	88	37	65.4	3.64	
Unionville	97	34	66.6	5.42	
Vichy	87	39	66.6	3.96	
Warrensburg	90	38	67.4	1.01	
Warrenton	90	40	66.0	3.04	
Wheatland	.....	.....	.....	2.08	
Willowsprings	89	34	65.2	1.23	
Windsor	93	38	67.9	1.78	
Wylie	88	42	67.0	5.04	
Zeitonia	88	34	66.2	3.91	
Montana.					
Adel	79	24	49.0	3.85	
Boulder *	82	29	53.3	1.88	
Bozeman	82	32	53.4	2.51	
Butte	76	33	52.5	2.90	
Canyon Ferry	87	35	58.2	5.80	
Chinook	97	34	60.0	0.97	
Columbia Falls	80	28	51.7	4.97	
Corvallis	84	31	54.0	2.30	
Crow Agency	93	34	60.1	0.47	
Dearborn Canyon	76	28	52.8	4.20	
Dell	80	28	51.1	0.05	
Dillon	82	30	56.4	1.56	
Dupuyer	81	29	52.8	7.54	
Ekalaka	98	28	64.1	0.86	
Fort Benton	88	35	59.0	0.90	
Fort Logan	98	29	51.4	1.61	
Glasgow	97	24	61.6	1.62	
Glendive	100	33	63.7	0.78	
Glenwood	84	27	51.8	2.65	.....
Greatfalls	86	40	57.8	2.73	
Kipp	78	27	50.8	3.28	2.6
Lewiston	89	27	55.1	.....	
Livingston †	88	36	56.2	.....	
Manhattan	88	31	55.8	1.44	
Martinsdale	85	32	53.6	1.74	
Marysville	86	32	50.8	2.79	T.
Missoula	88	36	55.9	4.19	
Ovando	82	25	51.0	4.99	1.1
Parrot	85	35	56.0	0.74	
Plains	82	30	55.8	4.00	
Poplar	97	29	62.4	1.54	
Redlodge	77	30	50.0	1.60	
Ridge	98	31	60.1	1.07	
Troy	85	30	54.5	2.90	
Twin Bridges	84	29	54.2	.....	
Utica	88	26	54.6	1.04	
Yale	85	31	53.8	1.02	
Nebraska.					
Agate	.....	.....	.....	1.50	
Albion	92	29	61.2	3.11	
Alliance	.....	.....	.....	2.10	
Alma	94	34	65.0	1.44	
Ansley	92	33	63.7	1.76	
Arapaho	95	47	67.5	2.30	
Arborville *1	94	32	64.2	2.68	
Ashland *a*	89	31	65.5	2.27	
Ashland *b* *1	95	39	67.3	2.19	
Ashton	.....	.....	.....	2.10	
Auburn	92	32	65.4	3.94	
Aurora *1	89	43	65.9	2.71	
Bartley	.....	.....	.....	2.05	
Beatrice	91	32	64.3	4.03	
Beaver	95	35	64.8	1.01	
Bellevue	.....	.....	.....	2.44	
Benedict	.....	.....	.....	3.20	
Benkleman	.....	.....	.....	0.74	
Blair	89	35	64.2	2.06	
Bluehill	.....	.....	.....	2.92	
Brokenbow *1	86	40	63.2	2.46	
Burchard	.....	.....	.....	5.32	
Burwell	.....	.....	.....	0.85	
Callaway	91	32	60.9	2.90	
Camp Clarke	91	31	60.8	1.21	
Central City	.....	.....	.....	2.05	
Chester	.....	.....	.....	4.17	
Columbus	89	30	63.7	1.97	
Culbertson	.....	.....	.....	1.03	
Curtis	93	38	66.7	0.27	
David City	88	33	64.4	3.00	
Dawson	92	34	66.2	3.90	
Eden	.....	.....	.....	5.39	
Edgar *a*	.....	.....	.....	0.77	
Ericson *2	94	45	65.8	2.63	
Ewing	.....	.....	.....	2.32	
Fairbury	92	31	63.8	3.22	
Fairfield	91	33	64.4	1.76	
Fairmont	87	31	63.2	3.27	
Fort Robinson	91	36	61.8	0.95	
Franklin	91	34	63.6	2.83	
Fremont	88	31	64.2	2.00	
Geneva	91	38	64.4	3.84	
Genoa	90	35	64.1	3.18	
Gering	98	30	62.4	0.67	
Gordon	.....	.....	.....	0.80	
Gothenburg	92	35	63.5	3.12	
Grand Island *a*	.....	.....	.....	1.60	
Grand Island *b*	93	31	64.0	0.54	
Grand Island *c*	91	32	64.7	1.01	
Greeley	.....	.....	.....	2.65	
Haigler	.....	.....	.....	0.60	
Hartington	92	30	62.4	3.57	
Harvard	87	33	63.2	4.20	
Hastings *1	90	45	66.0	2.01	
Hayes Center	.....	.....	.....	1.78	
Hay Springs	90	29	61.0	0.59	
Hebron	90	32	64.4	4.59	
Hickman	.....	.....	.....	3.75	
Holdrege *1	102	40	64.0	2.74	
Hooper *1	88	40	65.1	1.65	
Imperial	93	34	62.0	1.47	
Johnstown	.....	.....	.....	2.70	
Kearney	.....	.....	.....	2.03	
Kennedy	96	39	62.3	3.80	
Kimball	89	34	59.4	0.77	
Kirkwood *1	97	40	63.7	1.97	
Laciede	91	32	63.0	2.55	
Lexington	90	28	61.7	2.70	
Lincoln *d*	89	42	62.6	.....	
Lodgepole	92	33	61.0	2.37	
Loup	.....	.....	.....	2.13	
Lynch	98	26	63.8	2.00	
Lyons	.....	.....	.....	5.46	
McCook	.....	.....	.....	0.71	
Madison	88	31	62.8	3.24	
Madrid *5	95	40	66.2	1.75	
Marquette	.....	.....	.....	2.47	
Minden *a*	92	32	62.8	4.09	
Minden *b*	.....	.....	.....	4.12	
Monroe	.....	.....	.....	2.34	
Nebraska City *b* *1	94	48	6..9	2.24	
Nebraska City *c*	92	34	65.9	2.81	
Nemaha *1	102	40	66.9	5.24	
Nesbit	91	32	61.6	1.28	
Norfolk	92	28	63.5	2.81	
North Loup	93	34	63.6	2.66	
Oakdale	93	28	63.7	3.83	
Odell	.....	.....	.....	3.81	
O'Neill	96	30	62.9	2.51	
Ord	.....	.....	.....	1.53	
Osceola	.....	.....	.....	2.28	
Ough	.....	.....	.....	1.22	
Palmer	.....	.....	.....	2.55	
Palmyra *1	88	34	64.1	6.21	
Plattsmouth *a*	.....	.....	.....	2.11	
Plattsmouth *b*	.....	.....	.....	1.91	
Pleasanthill	.....	.....	.....	3.93	
Ravenna *a*	92	31	62.7	2.25	
Redcloud *b* *1	90	34	64.8	2.22	
Republican *1	91	48	65.4	0.45	
Rulo	.....	.....	.....	2.50	
St. Libory	.....	.....	.....	2.38	
St. Paul	94	27	63.1	1.51	
Salem *1	88	50	69.6	3.76	
Santee	92	32	66.0	2.76	
Sargent	.....	.....	.....	1.91	
Schuyler	.....	.....	.....	2.10	
Seneca *1	90	40	58.1	3.40	
Seward	.....	.....	.....	3.10	
Smithfield	.....	.....	.....	1.85	
Sprague	.....	.....	.....	3.81	
Springview	95	37	63.6	2.71	
Stanton *1	87	37	61.8	4.40	
State Farm	90	31	64.9	3.38	
Strang	.....	.....	.....	4.56	
Stratton	.....	.....	.....	0.77	
Superior *3	88	40	65.2	2.20	
Syracuse	.....	.....	.....	4.05	
Tablerock	.....	.....	.....	8.00	
Tecumseh *b*	92	40	67.4	3.70	
Tecumseh *c*	.....	.....	.....	3.79	
Tekamah	91	32	65.0	2.93	
Thedford	.....	.....	.....	2.63	
Turlington	91	32	64.8	3.81	
Valparaiso	.....	.....	.....	2.26	
Wakefield	91	27	63.2	2.46	
Wallace	.....	.....	.....	1.55	
Wauneta	.....	.....	.....	0.42	
Weeping Water *1	89	29	62.0	1.82	
Wellfleet	.....	.....	.....	0.50	
Westpoint	88	30	66.7	3.15	
Whitman	.....	.....	.....	2.00	
Wilber *1	90	40	64.8	3.85	
Willard	.....	.....	.....	1.61	
Wilsonville *1	90	46	63.7	1.20	
Winnebago	.....	.....	.....	1.45	
Wisner	.....	.....	.....	3.21	
Wymore *1	90	36	60.3	5.45	
York	.....	.....	.....	2.12	
Nevada.					
Austin	79	32	53.8	1.20	
Battle Mountain	.....	.....	.....	0.64	
Belmont	.....	.....	.....	0.48	T.
Beowawe *1	84	35	54.5	0.60	1.5
Candelaria	88	29	57.4	1.46	
Carlin *1	86	30	57.1	0.50	
Carson City	81	30	55.4	0.55	
Clover Valley	.....	.....	.....	1.00	
Cranes Ranch	.....	.....	.....	1.20	
Duck Valley	77	28	52.7	1.69	1.2
Elko (near)	.....	.....	.....	1.87	
Ely	83	30	54.9	0.18	
Empire Ranch	90	33	58.0	0.74	0.8
Fenelon	.....	.....	.....	0.40	4.0
Golconda *1	88	38	56.5	0.30	
Halleck *1	90	32	56.0	0.45	
Hawthorne	84	33	59.4	0.39	
Lee	.....	.....	.....	1.59	
Los Vegas	101	40	71.3	0.00	
Martins	80	31	57.0	0.45	
Mill City *1	82	40	61.0	2.00	
Monitor Mill	85	27	53.6	0.28	
Palisade *1	87	28	55.6	0.84	
Palmetto	86	28	54.6	2.25	4.0
Reno State University	82	32	55.6	0.39	
Sodaville	91	35	62.7	1.13	
Tybo	89	30	57.6	0.28	
Verdi *1	87	40	59.2	0.41	
Wadsworth *1	94	40	59.8	1.12	
New Hampshire.					
Alstead	.....	.....	.....	3.72	T.
Berlin Mills	84	20	48.0	4.81	3.0
Bethlehem	84	24	49.8	3.30	0.2
Brookline *1	94	19	54.2	2.82	T.
Claremont	92	28	54.4	2.26	T.
Concord	92	24	52.6	2.35	
Durham	93	28	51.1	2.53	
Grafton	88	15	49.4	2.63	T.
Hanover	88	21	52.0	3.23	
Keene	92	19	53.2	3.62	T.
Littleton	83	24	49.4	2.98	1.1
Nashua	94	23	53.6	3.06	T.
Newton	94	24	51.2	3.74	T.
North Conway	88	22	51.0	3.00	T.
Peterboro	89	20	51.0	2.83	T.
Plymouth	87	23	50.8	1.72	T.
Sanbornton	88	21	50.8	2.10	T.
Stratford	86	23	49.6	4.28	T.
Warner	.....	.....	.....	3.18	
New Jersey.					
Asbury Park	95	34	60.8	4.42	
Bayonne	94	36	61.9	4.86	
Belvidere	93	31	61.0	2.31	
Bergen Point	92	35	61.8	4.51	
Beverly	97	33	62.6	5.64	
Billingsport *1	89	43	61.7	6.01	
Boonton	98	30	60.2	4.01	
Bridgeton	97	34	64.4	2.53	
Cape May C. H.	94	33	61.8	3.63	
Charlotteburg	92	26	57.6	4.46	T.
Chester	88	.....	.....	3.27	
Clayton	95	31	62.3	3.42	
College Farm	93	34	64.0	5.58	
Deckertown	92	30	59.4	3.17	
Dover	92	30	59.0	4.78	
Egg Harbor City	94	32	60.8	3.16	
Elizabeth	96	33	61.8	5.24	
Flemington	94	30	60.8	4.65	
Freehold	91	31	59.9	4.35	
Friesburg	93	30	62.2	2.69	
Hammonton	.....	.....	.....	3.41	
Hanover	90	32	60.4	5.41	
Hightstown	91	36	61.2	5.25	
Imlaystown	95	34	63.2	4.76	
Lambertville	96	31	62.8	6.26	
Lebanon	.....	.....	.....	3.89	
Moorestown	93	33	61.4	5.79	
Mount Pleasant	.....	.....	.....	4.28	
Newark	93	34	60.0	4.62	
New Brunswick	95	34	62.6	5.51	
Newton	92	30	60.0	5.01	T.
Ocean City	90	31	57.6	5.44	
Oceanic	92°	38°	58.0°	4.86	
Paterson	98	34	62.4	6.02	
Perth Amboy	95	35	62.2	4.94	
Plainfield	94	31	59.7	5.81	
Rivervale	95	27	59.2	4.40	
Rocktown	.....	.....	.....	7.33	
Roseland	92	26	58.3	5.43	

TABLE II.—*Climatological record of voluntary and other cooperating observers*—Continued.

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
New Jersey—Cont'd.	°	°	°	*Ins.*	*Ins.*
Salem	94	36	63.8	3.55	
Somerville	97	29	61.8	7.13	
South Orange	91	32	59.8	5.12	
Toms River	95	29	59.2	4.66	
Trenton	89	35	60.8	6.84	
Tuckerton	95	30	60.8	5.12	
Woodbine	92	33	62.0	4.57	
New Mexico.					
Albert	89	44	63.7	4.15	
Albuquerque	90	39	67.0	0.85	
Alma	94	35	64.8	0.08	
Aztec	89	34	60.2	0.49	
Bellranch	.....	.....	.....	4.35	
Bernalillo	93	38	66 4	0.37	
Bluewater	92	27	58.2	0.35	
Cambray	.....	.....	.....	0.45	
Deming	.....	.....	.....	0.10	
East Lasvegas	83	37	58.6	1.87	
Engle	95	35	65.0	T.	
Espanola	80	35	57.0	1.80	
Folsom	82	33	56 8	2.56	
Fort Bayard	91	39	64.2	0.17	
Fort Stanton	90	36	59.6	1.09	
Fort Union	83	35	57.1	5.75	
Fort Wingate	89	30	59.6	0.65	
Gage	.....	.....	.....	0.00	
Gallisteo	83	32	59.0	0.87	
Gallinas Spring	91	35	63.2	3.94	
Hillsboro	91	40	62.6	0 34	
Horse Springs	91	27	60.6	0.30	
Las Vegas Hotsprings	79	36	56.1	3.06	
Lordsburg	.....	.....	.....	0.00	
Los Lunas	91	38	64.8	0.80	
Lower Penasco	92	42	63.2	1.70	
Lyons Ranch	94	35	67.4	T.	
Mesilla Park	98	33	69.2	0.88	
Olio	94	40	63.2	T.	
Raton	88	35	57.4	2.55	0.5
Rincon	93	40	69.0	0.00	
Roswell	94	42	66.8	1.62	
San Marcial	94	36	67.2	0.12	
Socorro	92	43	68.7	0.46	
Springer	85	32	52.8	3.96	
Strauss	.....	.....	.....	0.00	
Whitecaks	88	35	64.4	1.51	
Winsors Ranch	79	25	50.0	2.67	
Woodbury	90	39	62.8	1.50	
New York.					
Adams	.....	.....	.....	2.81	1.2
Addison	90	28	59.4	2.92	
Akron	.....	.....	.....	1.03	
Alfred	84	23	55.7	3.15	0.5
Angelica	85	24	56.4	2.62	T.
Appleton	86	29	55.0	1.05	T.
Arcade	82	27	55.4	2.40	1.5
Atlanta	90	24	56.5	1.77	T.
Auburn	.....	.....	.....	1.96	T.
Avon	.....	.....	.....	1.41	
Axton	83	19	51.0	2.38	T.
Baldwinsville	88	28	58.3	1.34	
Bedford *a*	92	28	57.6	4.51	
Beedes	87	21	51.3	2.23	1.1
Big Sandy *a* [10]	80	30	54.4	.....	
Blue Mountain Lake	.....	.....	.....	2.41	
Bolivar	86	18	54.4	2.68	1.0
Bouckville	83	25	53.2	1.93	2.0
Boyds Corners	.....	.....	.....	6.34	
Brentwood	92	27	58.4	4.90	
Brockport	84	29	57.4	1.42	
Caldwell	90	24	58.5	1.85	T.
Canajoharie	89	25	54.5	1.86	
Canton	83	21	51.9	2.79	T.
Carmel	90	32	60.4	6.51	
Carvers Falls	93	23	54.2	1.79	
Catskill	95	28	58.0	3.28	
Cedarhill	95	27	59.2	2.71	
Charlotte *a* [10]	80	34	52.6	.....	
Cooperstown	85	26	53.4	1.98	1.0
Cortland	86	25	57.9	1.17	
Cutchogue	90	32	57.0	4.30	
Dekalb Junction	.....	.....	.....	2.30	
Easton	.....	.....	.....	2.71	T.
Elba	84	28	56 8	2.01	0.5
Elmira	92	31	58.5	1.43	
Franklinville	85	22	54.0	1.91	0.7
Fulton	.....	.....	.....	1.54	
Gabriels	83	21	49.7	2.57	1.5
Glens Falls	92	26	56.1	1.83	1.0
Gloversville	88	23	54.0	1.52	0.5
Greenwich	89	23	55.2	3.11	0.5
Haskinville	..	.....	.....	2.17	1.0
Hemlock	84	28	57.5	2.00	
Honeymead Brook	92	26	56.6	2.85	
Hoosick Falls	.....	.....	.....	2.38	2.0
Humphrey	83	28	55.6	3.13	2.0
Indian Lake	82	25	51.3	2.04	0.2
New York—Cont'd.	°	°	°	*Ins.*	*Ins.*
Ithaca	88	28	57.1	1.51	0.2
Jamestown	84	30	58.8	1.95	0.1
Jay	88	22	52.1	2.88	0.3
Keene Valley	88	24	52.4	2.22	0.6
King Ferry	.....	.....	.....	1.08	1.5
King Station	.....	.....	.....	1.73	0.5
Liberty	85	28	57.4	2.90	
Littlefalls	86	26	54.4	1.89	2.0
Lockport	81	30	57.1	2.42	1.0
Lowville	86	21	54.1	1.78	
Lyndonville	.....	...	...	0.66	T.
Lyons	90	34	58.4	1.85	
Mayle	.....	.....	.....	2 38	T.
Middletown	90	31	58.1	3.44	T.
Moira	.....	...	...	4.30	T.
Newark Valley	.....	.....	.....	0.88	
New Lisbon	88	19	52.6	1.63	2.2
North Germantown	95	25	57.4	4.60	
North Hammond	80	28	54.9	2.68	0.5
North Lake	82	22	50.7	4.09	0.1
Number Four	80	20	50.4	3.10	1.6
Nunda	89	26	58.0	3.48	T.
Ogdensburg	78	29	53.6	3.48	T.
Old Chatham	.....	.....	.....	3.68	1.2
Oneonta	.....	.....	.....	1.26	3.0
Oxford	87	21	55.2	2.00	T.
Palermo	89	23	55.9	1.08	T.
Penn Yan	92	26	58.9	1.06	T.
Perry City	88	21	56.4	2.29	T.
Phœnix	.....	.....	...	1.54	
Pine City	.....	.....	.....	1.01	
Plattsburg Barracks	92	28	52.8	2.38	
Port Byron	86	26	56.7	0.88	1.0
Port Jervis	94	28	59.4	2.92	
Poughkeepsie	94	26	57.6	3.41	
Primrose	94	30	58.7	4.26	
Red Hook	.....	.....	.....	2.57	
Richmondville	87	24	54.9	2.23	1.0
Rome	84	25	54.2	0.81	
Romulus	89	26	58.4	0.60	
Rose	.....	.....	.....	1.46	T.
St. Johnsville	90	23	55.4	1.67	
Salisbury Mills	.....	.....	.....	3.84	
Saranac Lake	84	20	50.4	2.68	3.3
Saratoga Springs	88	24	55.0	2.03	T.
Schenectady	91	26	58.2	1.92	
Schenevus	.....	.....	.....	1.82	4.0
Scottsville	.....	.....	.....	1.52	
Setauket	91	34	58.2	5.12	
Shortsville	86	26	57.2	1.67	
Skaneateles	.....	.....	.....	2.25	
South Canisteo	86	24	56.2	3.05	0.8
Southeast Reservoir	.....	.....	.....	6.40	
South Kortright	87	18	53.2	1.66	0.6
Straits Corners	.....	23	.....	1.90	T.
Ticonderoga	93	30	55 6	0.90	T.
Volusia	83	28	56.8	2.44	
Wappingers Falls	94	30	60.1	4.43	T.
Warwick	.....	.....	.....	4.24	
Watertown	82	24	54.6	2.37	T.
Waverly	92	26	58.5	1.11	
Wedgwood	87	27	56.4	2.72	T.
West Berne	90	21	55.0	2.37	2.5
West Chazy	90	28	52.2	.....	T.
Westfield *a*	82	31	58.1	2.44	
Westfield *b*	82	30	58.8	2.31	
Westfield *c*	77	30	56.2	1.90	
Williamson	.....	.....	.....	1.45	T.
Windham	87	17	52.0	1.71	T.
North Carolina.					
Abshers	93	34	67.0	2.93	
Asheville	.....	.....	.....	0.99	
Biltmore	90	32	63.9	1.37	
Bryson City	.....	.....	.....	1.21	
Chapelhill	95[4]	42[4]	69.2[4]	2.62	
Cherryville	92	38	67.4	3.34	
Currituck	.....	.....	.....	3.26	
Edenton	89	48	69.0	3.15	
Fairbluff	.....	.....	.....	1.73	
Fayetteville	93	44	69.3	2.53	
Goldsboro	91	45	68.8	3.46	
Greensboro	92	42	68 3	2.30	
Henderson	93	43	67.2	2.67	
Hendersonville	88	33	62.4	3.83	
Henrietta	92	41	68 3	2.92	
Highlands	79	32	58.4	1.67	
Horse Cove	81	39	62 8	2.28	
Kinston	94	42	68.8	2.67	
Linville	79	31	55.6	2.17	
Littleton	93	43	66.4	2.05	
Louisburg	92	42	68.0	3.39	
Lumberton	89	45	70.4	2.88	
Marion	94	39	66.6	1.96	
Marshall	90	32	64.2	1.46	
Mocksville	.....	.....	.....	3.13	
Moncure	89	42	67.8	2.42	
North Carolina—Cont'd	°	°	°	*Ins.*	*Ins.*
Monroe	91	36	67.2	0.92	
Mountairy	88	33	62.4	1.02	
Mount Pleasant	95	40	68.4	2.53	
Murphy	.....	.....	.....	2.19	
Newbern	89	47	70.0	4.87	
Oakridge	96	38	66.7	1.38	
Patterson *a* [1]	87	38	61.0	2.92	
Pittsboro	92	40	66.9	3.79	
Rockingham	92	42	70.0	3.25	
Roxboro	93	42	67.9	2.62	
Salem	94	38	67.6	2.57	
Salisbury	95	42	69.6	4.12	
Saxon	93	34	67.0	2.60	
Settle	92	34	65.4	2.40	
Sloan	90	40	68.6	1.76	
Soapstone Mount	91	38	66.4	5.71	
Southern Pines *a*	.....	.....	...	3.33	
Southern Pines *b*	91	47	69.4	3.28	
Southport	86	51	70.5	3.08	
Springhope *a* [1]	88	47	67.0	2.75	
Tarboro	97[4]	41[4]	68.9[4]	2.07	
Washington	96	48	70.7	3.84	
Waynesville	83	31	61.0	1.01	
Weldon *a*	90	44	66.8	2.74	
Weldon *b*	.....	.....	.....	2.78	
North Dakota.					
Amenia	98	24	60.2	0.74	
Ashley	92	26	61.0	0.30	
Berlin	99	20	55.7	0.25	
Bottineau	97	15	58.1	0.70	
Buxton	93	23	57.6	0.46	
Churchs Ferry	98	18	60.0	0.66	
Coalharbor	96	22	60.4	0.82	
Devils Lake	98	20	59.4	0.22	
Dickinson	106	29	61 8	0.48	
Dunseith	96	16	58.1	0.27	
Ellendale	96	28	60.3	0.34	
Falconer	96	28	61.2	0.47	
Fargo	97	24	59.2	0.81	
Forman	96	25	59.6	0.41	
Fort Berthold	103	22	59.8	0.38	
Fort Yates	96	34	60.8	0.20	
Fullerton	93	24	59.0	0.44	
Gallatin	94	25	57.0	0.93	
Glenullin	.....	29	.....	1.03	
Grafton	98	22	59.8	1.20	
Hamilton	100	16	54.8	0.20	
Hannaford	95	25	59.7	0.74	
Jamestown	96	23	60.0	3.46	
Langdon	96	18	67.2	0.30	
Larimore	98	21	57.9	0.16	
Lisbon	96	25	58.8	0.76	
McKinney	101	20	58.1	0.81	0.1
Mayville	97	28	61.0	0.90	
Medora	104	30	61.0	1.04	
Melville	93	21	60.1	0.49	
Milton	94	18	56.0	0.10	
Minnewaukon	97	20	59.1	0.54	
Minot	100	27	61.0	0.51	
Minto	103	17	60.0	0.25	
Napoleon	96	24	59.2	1.07	
New England	96	26	57.0	1.31	
Oakdale	91	33	60.0	.....	
Pembina	98	17	58 0	0.41	
Portal	100	21	58.6	1.52	0.2
Power	98	21	58.2	0.61	
St. John	105	21	57.2	0.66	
Steele	97	23	61.2	1.14	
Towner	94	18	57.0	2.27	
University	95	17	58.1	.....	
Wahpeton	99	25	61.9	0.43	
Willow City	94	17	57.6	0.94	
Woodbridge	98	19	56.0	0 05	
Ohio.					
Akron	89	30	61.8	1.50	
Annapolis	96	24	61.0	1.63	
Ashland	90	27	61.2	1.73	T.
Ashtabula	83	30	58.2	1.00	
Atwater	.....	.....	.....	1.95	
Bangorville	93	26	64.0	1.73	T.
Bellefontaine	88	20	63.3	.....	
Bement	.....	.....	.....	1.43	
Benton Ridge	91	28	62 8	2.42	T.
Bethany	95	35	65.8	4.48	
Bigprairie	89	26	61.6	1.94	T.
Binola	.....	.....	.....	1.54	T.
Bladensburg	91	24	61.8	1.22	
Bloomingburg	87	33	64.0	2.11	
Bowling Green	88	28	62.2	2.95	
Bucyrus	.....	.....	.....	3.27	
Cambridge	89	24	61.4	2.26	
Camp Dennison	90	33	65.0	6.39	
Canal Dover	91	25	61.6	0.84	
Canton	92	28	62.8	1.44	
Cardington	94	25	62.6	0.90	T.
Cedarville	.....	.....	.....	3.08	

TABLE II.—*Climatological record of voluntary and other cooperating observers*—Continued.

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Ohio—Cont'd.	°	°	°	*Ins.*	*Ins.*
Celina	91	30	62.6	2.17	
Chillicothe	94	30	65.6	2.45	
Circleville	93	31	64.8	2.38	
Clarksville	91	35	64.6	3.49	
Cleveland *a*	85	32	61.0	1.85	
Cleveland *b*	87	32	61.0	1.49	
Clifton	92[d]	29°	64.4[d]	1.97	
Coalton	93	26	63.6	3.18	
Colebrook	91	24	59.6	4.03	T.
Dayton *a*				3.09	
Dayton *b*	94	30	65.2	2.79	
Defiance	89	28	62.2	3.21	T.
Delaware	91	29	63.1	1.25	
Demos	92	29	62.6	2.39	
Elyria	89	29	61.0	1.80	
Findlay	95	28	64.5	2.86	
Frankfort	91	30	63.2	3.29	
Garrettsville	88	25	59.2	2.01	T.
Granville	91	28	62.2	1.56	
Gratiot	89	28	62.0	2.46	
Greenfield	89°	37°	65.6°	2.90	
Greenhill	90	21	59.6	1.67	T.
Greenville	86	36	63.0	3.87	
Hanging Rock	95	29	63.8	4.14	
Hedges				2.89	
Hillhouse	86	22	58.3	1.32	T.
Hillsboro	90	28	62.2	2.92	
Hiram	88	30	59.6	2.70	
Hudson	92	25	60.4	1.62	
Jacksonboro	93	38	66.0	3.80	
Kenton	94	31	65.6	1.39	
Killbuck	91	27	63.0	1.48	
Lancaster	90	29	63.8	2.37	
Logan				1.93	
Lowell	95	25	65.2	1.33	
McConnelsville	91	26	63.0	2.48	
Mansfield				3.50	
Marietta	89	35	65.1	2.35	
Marion	94	28	64.4	1.33	
Medina	91	26	61.2	1.15	T.
Milfordton	92	27	61.9	1.45	
Milligan	93	23	62.4	2.46	
Millport	90	21	60.6	1.76	T.
Montpelier	89	27	61.6	2.09	
Napoleon	89	29	62.2	2.30	
Neapolis				3.19	
New Alexandria	91	30	63.4	2.25	
New Berlin	91	24	61.8	2.92	T.
New Bremen	91	33	65.0	2.28	
New Holland	93	30	65.0	2.60	
New Paris	89	34	63.4	5.71	
New Richmond	91	37	66.0	3.87	
New Waterford	97	28	62.6	2.94	
North Lewisburg	94	30	63.5	1.90	
North Royalton	89	27	61.8	1.53	
Norwalk	90	28	62.4	3.08	
Oberlin	92	25	62.2	2.27	
Ohio State University	90	30	63.6	1.64	
Orangeville	89	20	58.8	2.95	T.
Ottawa	92	28	63.8	2.00	
Pataskala	95	27	63.2	2.98	T.
Perry				1.20	
Philo	90	28	62.8	2.78	
Plattsburg	90	32	63.2	1.48	
Pomeroy	95	29	63.8	3.06	
Portsmouth *a*				2.48	
Portsmouth *b*	94	35	66.4	2.48	
Pulse				2.97	
Richwood	94	26	65.1	1.02	
Ridgeville Corners	90	27	62.0	4.91	
Ripley	92	34	64.8	3.47	
Rittman	88	25	60.0	1.15	
Rockyridge	90	28	62.1	2.52	
Rosewood	89	32	63.5	2.02	
Shenandoah	91	26	61.6	1.75	
Sidney	92	33	64.8	1.90	
Sinking Spring	89	33	63.9	3.40	
Springboro				3.68	
Strongsville				1.85	
Thurman	94	31	64.8	1.27	
Tiffin	90	31	63.4	1.21	T.
Upper Sandusky	92	28	63.0	3.05	
Urbana	88	35	63.4	2.36	
Vanceburg	93	31	64.8	3.60	
Vermillion	89	27	60.6	1.54	
Vickery	92	27	62.1	2.36	
Walnut				3.64	
Wauseon	91	26	62.5	4.12	T.
Waverly	95	30	65.6	2.57	
Waynesville	91	33	63.6	5.94	
Wellington	92	25	62.7	1.32	
Westerville	88	32	62.9	1.86	
Willoughby				0.99	
Wooster	89	25	61.5	2.23	T.
Youngstown				3.40	
Zanesville				2.13	
Oklahoma.					
Arapaho	95	43	68.4	3.34	
Beaver	94	40	66.5	1.00	
Burnett	91	45	68.4	3.96	
Clifton	90	46	68.2	7.68	
Fort Reno	88	44	67.3	3.70	
Fort Sill	93	46	68.4	4.00	
Guthrie	89	48	68.7	3.27	
Hennessey	96	40	68.7	4.41	
Jefferson	91	40	67.0	2.80	
Jenkins	93	42	67.4	4.78	
Kingfisher	91	44	67.2	3.83	
Mangum	89	48	67.6	4.26	
Newkirk	91	41	64.8	4.45	
Norman	87	44	66.6	5.02	
Osage	93	39	68.5	8.92	
Prudence [b]	90	40	66.7	2.80	
Sac and Fox Agency	90	42	67.2	7.02	
Stillwater	85	43	67.8	3.71	
Waukomis	97	40	68.9	4.95	
Wood				4.15	
Oregon.					
Albany *a* [*1]	84	40	58.5	4.86	
Albany *b*				3.95	
Alpha	80	37	55.2	5.49	
Arlington	88	48	65.2	0.15	
Ashland *b*	80°	35°	56.4°	1.27	
Aurora	77	45	57.4	3.62	
Aurora (near)	78	36	55.4	4.10	
Bandon	65	41	55.4	4.90	
Bay City	70	40	54.8	8.45	
Beulah	85	31	56.0	0.80	
Blalock	91	41	63.6	0.55	
Brownsville [*1]	80	50	59.8	1.80	
Bullrun	72	40	54.0	7.67	
Burns	76	31	52.4	0.34	
Cascade Locks	78	42	57.6	4.49	
Comstock [*1]	82	46	58.5	3.13	
Coquille				4.46	
Corvallis	76	36	55.4	3.16	
Dayville	85	31	57.8	1.15	
Ella				0.39	
Eugene				2.42	
Fairview	68	44	55.3	4.09	
Falls City	79	33	53.8	4.41	
Forestgrove	82	34	55.2	3.74	
Gardiner	69	43	55.8	5.98	
Glenora	82	34	53.0	9.13	
Government Camp	75	29	45.0	5.99	2.0
Grants Pass	82	36	57.6	1.36	
Happy Valley	78	24	50.6	2.06	2.0
Hare	67	35	51.1	8.20	
Hood River (near)	85	38	57.2	0.50	
Jacksonville	81	37	57.5	1.90	
Joseph	77	29	49.8	2.37	4.5
Junction City [*1]	82	44	57.7	2.13	
Kerby	84[f]	31	56.0[d]	2.23	
Klamath Falls	78	30	53.5		
Lafayette [*1]	86	50	58.9	3.41	
Lagrande	84[f]	31	55.0[e]	1.63	
Lonerock	79	28	49.9	1.60	
McMinnville	83	37	55.3	3.34	
Merlin [*1]	86	48	65.3	1.17	
Monmouth *a* [*1]	81	44	55.8	3.75	
Monmouth *b*	79	34	56.8	3.85	
Monroe	74	35	55.1	2.83	
Mount Angel	78	41	56.9	5.10	
Nehalem				7.52	
Newberg	81	34	55.8	3.90	
Newbridge	86	30	55.0	1.73	
Newport	65	42	53.2	6.88	
Pendleton	94	39	58.4	1.99	
Placer				1.92	
Prineville	85	29	56.0	0.33	
Riddles [*1]	80	40	58.6	2.65	
Riverside	87	31	57.2	0.81	
Salem	81	36	58.5	3.90	
Sheridan [*1]	82	40	53.9	2.60	
Silverlake	80	23	49.8	0.90	0.5
Silverton [*1]	84	52	60.1	4.79	
Siskiyou [*1]	68	38	54.3		
Sparta	78	30	52.9	2.12	T.
Springfield [*1]	74	45	57.2	2.42	
Stafford	80	39	55.8	4.78	
The Dalles	88	40	60.8	0.03	
Tillamook				5.97	
Toledo	77	38	54.4	3.55	
Umatilla				0.79	
Vale	87	33	57.8	1.69	
Vernonia	75	35	55.2	4.50	
Westfork [*1]	84	44	64.4	2.29	
Weston	84	33	56.1	2.02	
Williams	81	32	56.4	0.86	
Pennsylvania.					
Altoona	90	28	60.2	3.91	
Athens	93	35	58.2	1.26	
Beaver Dam				1.50	
Pennsylvania—Cont'd.					
Brookville				2.33	
Browers Lock				3.93	
Butler	90	24	59.8	4.67	T.
Carlisle	93	32	62.7	1.17	
Cassandra	87	28	57.8	1.43	
Cedarrun				0.90	
Centerhall	90	30	60.8	1.92	
Chambersburg	94	29	61.6	1.13	
Coatesville	95	32	62.3	4.73	
Confluence	90	23	58.8	2.06	
Coopersburg	90	33	60.4	2.72	
Davis Island Dam				1.10	
Derry Station	96	28	62.7	2.34	
Driftwood				1.95	
Duncannon				1.66	
Dushore	90	24	56.8	2.31	
East Bloomsburg				1.83	
East Mauch Chunk	95	30	60.8	2.20	
Easton	91	33	61.4	2.50	
Ellwood Junction				2.75	
Emporium	89	24	58.4	3.46	T.
Ephrata	92	31	61.4	5.07	
Everett	92	28	59.0	2.10	
Forks of Neshaminy [*1]	89	40	60.8	7.63	
Franklin	91	24	60.2	1.90	T.
Freeport				1.69	
Girardville				1.29	
Grampian [d]	86	28	59.2	2.77	T.
Greensboro				2.96	
Hamburg				3.20	
Hawthorn	91	23	59.6	3.14	
Hews Island Dam				1.22	
Huntingdon *a*	92	28	60.6	4.30	
Huntingdon *b*				3.11	
Irwin				1.78	
Johnstown	92	29	62.1	2.92	
Keating				4.08	
Kennett Square	94	33	61.2	4.37	
Lancaster	88[b]	33[b]	61.4[b]	4.59	
Lawrenceville	89	22	56.5	2.47	
Lebanon	93	32	61.2	2.13	
Leroy	89	27	58.2	1.50	T.
Lewisburg	94	28	60.8	3.16	
Lockhaven *a*	95	30	62.8	1.29	
Lockhaven *b*				0.94	
Lock No. 4				1.52	
Lycippus	89	30	61.8	2.30	
Mimlin				1.32	
Nisbet				1.23	
Oil City				1.77	
Parker				3.52	
Philadelphia	94	38	63.7	5.10	
Quakertown	92	30	60.6	3.45	
Reading [3]			61.0	3.86	
Renovo *a*				2.66	T.
Renovo *b*	93	29	60.2	2.67	0.3
Saegerstown	87	22	58.7	2.78	
Scranton	91	31	60.0	2.81	
Selinsgrove	95	27	62.1	0.72	
Shawmont				7.04	
Sinnamahoning				1.71	
Smethport	86	20	55.5	1.88	T.
Somerset	91	22	56.8	3.67	
South Eaton	90	29	59.0	1.97	
State College	88	30	60.8	2.30	
Sunbury				0.55	
Swarthmore	92	35	64.6	5.29	
Towanda	96	24	58.2	1.38	
Troutrun				2.99	
Uniontown	89	30	61.8	2.72	
Warren	87	25	55.4	2.16	
Wellsboro	89	25	56.6	2.50	0.5
Westchester	90	35	61.6	6.57	
West Newton				3.59	
Westtown	88	34	59.8	5.87	
Wilkesbarre	91	32	59.8	3.81	
Williamsport	89	33	58.8	2.35	
York	93	31	61.6	1.85	
Rhode Island.					
Bristol	74	35	54.6	3.84	
Kingston	90	27	54.5	5.02	
Pawtucket	85	28	51.9	6.34	
Providence *a*	94	34	57.6	6.24	
Providence *c*	94	30	56.0	6.39	
South Carolina.					
Allendale	87	47	70.1	3.02	
Batesburg	91	49	70.8	1.71	
Beaufort	86	51	73.2	3.62	
Blackville	92	45	71.4	2.99	
Calhoun Falls				3.04	
Camden				1.67	
Cheraw *a*	91	43	70.0	2.86	
Cheraw *b*				2.21	
Clemson College	92	40	68.0	2.12	
Conway				1.42	
Darlington				1.19	

TABLE II.—*Climatological record of voluntary and other cooperating observers*—Continued.

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
South Carolina—Cont'd.	°	°	°	*Ins.*	*Ins.*
Edisto				3.02	
Effingham				2.23	
Florence	88	46	71.0	1.72	
Gaffney				2.75	
Georgetown	85	48	68.8	2.60	
Gillisonville	94	41	71.6	2.55	
Greenville	87	41	65.9	1.90	
Greenwood	98	47	71.0	1.61	
Holland	88	42	67.0	2.87	
Kingstree *a*	89	43	69.8	1.50	
Kingstree *b*				1.47	
Liberty	96	40	69.2	2.04	
Little Mountain	91	47	71.4	2.39	
Longshore	91	44	69.8	2.13	
Pinopolis [*1]	84	48	69.8	2.60	
St. George	88	48	70.2	3.12	
St. Matthews	90	49	71.6	2.75	
St. Stephens				1.81	
Santuck	93	39	69.2	2.06	
Shaws Fork	85	42	65.5	1.43	
Smiths Mills				3.25	
Societyhill	88	47	71.5	1.17	
Spartanburg	93	40	68.8	3.17	
Statesburg	90	50	72.0	2.46	
Summerville	85	45	69.4	2.51	
Temperance	94	42	71.0	2.53	
Trenton	87	52	71.9	1.74	
Trial	87	38	67.5	1.77	
Walhalla	89	38	66.0	1.25	
Winnsboro	85	47	68.0	2.25	
Winthrop College	92	45	69.8	2.96	
Yemassee	92	47	73.8	3.87	
Yorkville	96	45	71.8	4.99	
South Dakota.					
Aberdeen	95	30	63.1	0.25	
Academy	98	32	64.6	1.68	
Alexandria	98	30	64.1	0.50	
Armour	93	30	62.8	1.62	
Ashcroft	98	30	62.3	1.15	
Bowdle	94	29	59.8	0.23	
Brookings	93	25	60.0	1.23	
Canton	92	26	63.4	2.57	
Centerville				2.81	
Chamberlain	100	31	64.7	1.32	
Clark	92	28	60.1	0.98	
Desmet	92	26	60.8	0.91	
Doland	96	27	62.8	0.60	
Elk Point	93	32	66.2	2.42	
Farmingdale				0.41	
Faulkton	93	30	61.0	0.48	
Flandreau	98	24	61.2	0.61	
Forestburg	94	29	61.8	1.11	
Forest City	101	31	66.2	0.25	
Fort Meade	94	37	62.4	0.35	
Gannvalley	95	31	63.8	0.55	
Gary	93	29	62.2	1.32	
Grand River School	97	30	63.0	1.26	
Greenwood	95	33	65.7	2.90	
Hartman	98	25	63.4	1.40	
Highmore	97	22	62.3	0.47	
Hitchcock				1.09	
Hotch City	98	30	63.6	1.24	
Hot Springs	95	30	61.6	2.10	
Howard	90	29	62.8	1.43	
Interior	100	30	65.9	0.65	
Ipswich	98	27	61.6	0.03	
Kimball	93	32	63.8	1.50	
Leola	94[e]	26[f]	58.8[f]	0.35	
Leslie	100	30	62.9	1.32	
Mellette	92	28	60.6	0.36	
Menno	97	28	63.4	2.23	
Millbank	94	27	60.1	1.00	
Mitchell	96	30	62.4	1.86	
Oelrichs	97	33	63.6	0.45	
Parker	96	30	63.2	2.15	
Plankinton	98	31	62.9	2.02	
Redfield	92	28	61.0	0.51	
Rosebud	98	32	64.2	1.03	
St. Lawrence	93	24	63.2	0.63	
Shiloh	98	33	64.4	0.01	
Sioux Falls	94	30	64.6	2.50	
Sisseton Agency [b]	93	27	58.8	0.18	
Spearfish	92	35	60.8	1.27	
Tyndall	96	29	64.2	2.78	
Watertown	93	19	58.6	0.56	
Wanbay	90	25	59.8	0.41	
Wentworth				0.78	
Wolsey				0.91	
Tennessee.					
Arlington	88	42	67.6	2.28	
Ashwood	90	36	67.2	3.61	
Benton	90	37	68.2	3.12	
Bluff City				2.19	
Bolivar	90	41	68.0	3.02	
Bristol	89	34	63.8	1.53	
Brownsville	91	42	69.3	2.28	

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Tennessee—Cont'd.	°	°	°	*Ins.*	*Ins.*
Byrdstown	90	34	66.0	1.39	
Carthage	91			1.59	
Clarksville	88	41	67.8	2.42	
Clinton				0.93	
Covington	87	42	69.6	1.90	
Decatur	90	35	67.0	1.50	
Dyersburg	90	44	69.2	2.12	
Elizabethton	90	32	64.8	1.16	
Elk Valley				1.57	
Erasmus	89			1.29	
Florence	89	37	66.9	1.32	
Franklin	89	38	66.7	1.24	
Grace [*1]	92	38	68.0	1.75	
Greeneville	89	33	64.6	2.33	
Harriman	90	34	66.8	1.64	
Hohenwald	90[c]	35	66.6[d]	3.04	
Iron City	89	36	66.4	4.84	
Jackson	88[c]	44[c]	69.4[c]	4.75	
Johnsonville	92	35	67.8	3.42	
Jonesboro [*1]	85	32	64.2	3.82	
Kingston				1.89	
Lafayette [*b]	94	38	67.0	1.09	
Lewisburg	91	37	67.1	2.22	
Liberty	87	37	65.8	1.54	
Lynnville	88	40	68.6	3.09	
McKenzie	97	42	69.6	2.47	
McMinnville				1.10	
Madison	95	35	68.0	2.34	
Maryville [*b]	90	37	68.0	1.38	
Milan	93	40	69.7	4.02	
Newport	88	37	65.8	1.50	
Nunnelly	92	36	66.2	3.64	
Oakhill	92	34	67.9	2.60	
Palmetto	92	38	68.0	2.41	
Peryear [*b]	90	40	71.0	4.10	
Pope	93	32	66.2	3.31	
Rogersville	86	34	64.2	1.65	
Rugby	87	30	63.8	1.37	
Savannah	94	40	67.9	7.25	
Sewanee	87	37	65.6	2.28	
Silverlake	86	33	60.4	3.37	
Springdale	94	30	65.3	1.94	
Springfield	92	35	67.0	1.15	
Tazewell				1.96	
Tellico Plains	92	35	68.4	2.47	
Tracy City	91	33	66.0	3.42	
Trenton	91	41	69.2	2.12	
Tullahoma	87	35	65.1	3.05	
Union City	89	42	69.2	0.75	
Wildersville	87	40	67.4	3.93	
Yukon	88	40	67.7	4.04	
Texas.					
Alice	94	57	77.1	1.84	
Alpine	94	44	69.6	2.64	
Alvin				5.29	
Anna	96	45	71.0	4.57	
Arthur				5.61	
Austin *a*	96	54	73.6	11.05	
Austin *b* [*b]	91	54	71.8		
Ballinger	89	49	69.8	6.08	
Beaumont	93	60	75.3	3.89	
Beeville	93	57	74.2	3.85	
Big Springs				4.32	
Blanco	91	50	70.2	5.22	
Boerne [*1]	90	54	70.4	7.71	
Bowie	88	54	69.6	5.66	
Brazoria	90[c]	62[c]	75.2[c]	2.76	
Brenham	90	57	73.4	6.33	
Brighton	91	62	77.6	3.34	
Brownwood	96	50	74.2	4.42	
Burnet [*1]	87	54	70.0	3.86	
Camp Eagle Pass	96[c]	58	75.0	8.15	
Coleman	86[d]	50[d]	69.0[d]	3.21	
Columbia	89	63	75.2	2.12	
Corsicana	93	54	74.2	4.13	
Cuero	95	59	75.0	4.67	
Dallas	90	51	71.0	2.75	
Danevang	97	60	76.6	4.59	
Dublin	86	52	69.4	4.61	
Duval	88	57	72.1	6.98	
Emory	90	48	70.9	5.42	
Estelle	90	50	71.8	3.25	
Forestburg				7.75	
Fort Clark	91	58	74.8	12.50	
Fort McIntosh	104	58	79.6	6.32	
Fort Ringgold	105	56	81.2	1.50	
Fort Stockton				2.23	
Fredericksburg [*1]	86[c]	53[c]	71.4[d]	6.22	
Gainesville	89	49	70.8	4.48	
Georgetown [*1]	92	55	71.6	6.09	
Grapevine	90	52	72.0	3.09	
Greenville	90	46	71.4	7.86	
Hale Center	90	49	66.8	3.40	
Hallettsville	95	59	76.2	6.52	
Haskell				3.04	
Hearne	91	60	76.6	9.87	

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Texas—Cont'd	°	°	°	*Ins.*	*Ins.*
Henrietta	89	48	68.9	2.62	
Hondo	90[c]	65[c]	74.8[f]	6.84	
Houston	93	59	75.6	3.07	
Hulen				2.90	
Huntsville	92	53	74.2	6.69	
Ira	94	48	69.0	3.08	
Jacksonville	88	48	71.4	6.02	
Jasper	91	50	74.2	5.40	
Junction				4.30	
Kaufman	93	52	73.2		
Kent				1.45	
Kerrville	89	48	68.8	5.37	
Lampasas	92	50	73.8	3.19	
Langtry	98	59	78.5	5.43	
Lapara				2.31	
Laureless Ranch				2.27	
Llano [*b]	93	58	73.6	4.25	
Longview	94	51	74.0	5.98	
Luling	93	57	74.2	3.63	
Mann	89	50	71.2	5.03	
Menardville	92	49	69.6	4.85	
Mount Blanco	86	45	65.7	1.20	
New Braunfels	90	57	73.6	3.75	
Panter				7.66	
Paris *a*	94			1.90	
Point Isabel [*1]	90	72	80.5	0.10	
Rhineland	91	49	69.8	6.04	
Rockisland	92	60[f]	75.2[f]	6.71	
Rockport [*1]	87	65	75.7		
Runge	96[c]	60	72.0[c]	4.78	
Saginaw [*1]	91	55	72.0	4.60	
San Antonio	94	57	75.3	4.58	
Sanderson	94	55	78.0	4.00	
San Marcos	92	55	73.3	5.01	
Santa Gertrudes Ranch				1.89	
Sherman	93	53	72.1	3.58	
Sugarland	92	55	74.9	4.90	
Sulphur Springs	87	50	71.6	4.94	
Temple *a*	88	54	71.6	10.02	
Temple *b*	90	49	69.0	8.99	
Trinity	91	52	73.5	7.04	
Tulia	88	44	63.9	3.77	
Turnersville	87	50	76.5	3.61	
Tyler	93	40	74.0	4.73	
Valentine	96	42	68.8	2.65	
Victoria				7.22	
Waco	90	53	73.8	7.00	
Waxahachie	90	46	72.2	3.05	
Weatherford	89	48	71.5	5.84	
Wichita Falls				10.84	
Utah.					
Alpine				0.56	
Bluecreek				0.22	
Castledale	88	31	57.9	0.05	
Cisco	90			0.00	
Corinne	92	34	59.8	1.35	
Deseret	94	32	60.8	0.10	
Elgin [f]	101	38	65.6	0.00	
Farmington				0.78	
Fillmore	97	30	59.7	0.35	
Fish Springs	90[b]	41	64.0[d]	0.20	
Fort Duchesne	91	32	58.6	0.15	
Frisco	92	25	58.2		
Giles	97	34	65.2	T.	
Grover	82	33	55.6	0.09	T.
Heber	85	28	54.3	0.16	
Henefer	94	26	54.8	0.88	
Hite	98	48	72.8		
Huntsville				1.16	
Kelton [*1]	90	45	65.5	0.00	
Levan	88	30	57.2	0.57	
Loa	82	27	53.2	T.	
Logan	84	35	57.4	1.42	
Manti [b]	91	32	60.0		
Marysvale [*1]	80	22	37.2	1.35	13.0
Meadowville				0.08	
Millville				1.52	
Minersville	89	35	60.0	0.32	
Moab	95	38	66.0	0.03	
Mount Pleasant	88	29	56.2	0.32	
Ogden [*1]	88	41	60.4	1.10	
Park City	78	29	52.0	0.30	
Parowan	88	29	57.8	0.61	
Pinto	84	25	53.8	0.65	
Promontory				0.27	
Provo	90	30	57.8	0.32	
Richfield	92	32	59.6	0.08	0.5
St. George	97	37	68.0	0.46	
Scipio	91	25	57.8	0.01	
Soldier Summit				T.	
Terrace [*1]	80	30	62.9		
Thistle	90	28	56.4	0.05	
Tooele	86	35	59.1	0.36	
Tropic	88	21	53.2	0.12	
Vernal	89	34	60.2	0.26	
Wellington	89[b]	28[b]	56.6[b]	0.09	

TABLE II.—*Climatological record of voluntary and other cooperating observers*—Continued.

Stations.	Temperature. (Fahrenheit.)			Precipitation.	
	Maximum.	Minimum.	Mean.	Rain and melted snow.	Total depth of snow.
Utah—Cont'd.	°	°	°	*Ins.*	*Ins.*
Woodruff	79	26	49.5	0.20	
Vermont.					
Bennington	93	28	57.6	2.08	T.
Brattleboro	93	23	55.8	4.29	
Burlington	85	29	55.2	2.45	T.
Chelsea	83	22	49.6	1.95	1.0
Cornwall	89	25	55.2	1.30	
Derby	84	22	48.4	3.81	
Enosburg Falls	87	28	56.0	4.23	
Hartland	88	18	50 8	2.75	T.
Jacksonville	85	22	52.6	1.49	
Manchester	82	25	52.6	4.03	0.9
Norwich	88	19	51.0	2.72	T.
St. Johnsbury	83	22	50.1	2.66	T.
Vernon [6]	90	32	55.6	3.81	
Wells	86	25	52.6	2.51	0.5
Woodstock	86	17	50.5	2.96	T.
Virginia.					
Alexandria	96	38	66.2	2.92	
Ashland	92	40	65.3	2.59	
Barboursville	91	35	65.2	1.41	
Bedford	90	37	63.0	2.92	
Bigstone Gap	91	30	63.7	1.54	
Birdsnest [11]	89	45	64.2	3.30	
Blacksburg	87	31	59.1	3.19	
Bon Air	92	41	66.4	2.47	
Burkes Garden	84	26	56 3	4.51	
Callaville	89	40	65.0	3.18	
Charlottesville	92	38	69.7	2.58	
Christiansburg				4.34	
Clarksville				2.66	
Cliftonforge	94	36	62.7	3.80	
Dale Enterprise	92	27	62.0	2.06	
Danville				2.67	
Farmville	95	42	67.3	2.48	
Fredericksburg	93	39	64.6	1.17	
Freeling	85	31	58.4	2.30	
Hampton	90	45	67.2	3.00	
Hot Springs	87	28	60.1	3.50	
Lexington	90	37	63.2	2.70	
Manassas	92	39	65.4	1.79	
Marion	91[d]	31[d]	61.8[d]	3.22	
Newport News	95	45	70.6	3.50	
Petersburg	96	41	68.1	1.09	
Radford				3.31	
Rockymount	91	38	66.8	2.65	
Salem	91	38	66.4	3.12	
Speers Ferry				1.58	
Spottsville	95	37	66.8	3.84	
Stanardsville	92	36	64.2	1.13	
Staunton	94	33	64.6	3.19	
Stephens City	96	34	65.6	2.95	
Sunbeam	91	42	66.2	2.66	
Tobaccoville		35		2.05	
Warrenton	94	38	64.4	1.96	
Warsaw	94	38	65.0	4.03	
Woodstock	93	33	63.4	1.22	
Wytheville	91	32	62.0	2.65	
Washington.					
Aberdeen	70	36	51.9	5.60	
Anacortes				2.15	
Ashford				8.11	
Bremerton	79	40	55.3	4.66	
Bridgeport	88	35	61.8		
Brinnon	70	38	55.4	6.99	
Cedar Lake				10.07	
Cedonia	78	32	53.6	2.02	
Centerville	83	33	56.8	0.49	
Cheney				3.70	
Clearwater	75	38	54.5	7.74	
Cle Elum	84	29	52.6	1.14	
Colfax	89	35	57.0	2.52	
Colville	86	29	54.4	1.33	
Conconully	82	32	56.2	2.29	
Connell				0.12	
Coulee City [c]	85	37	59.0	0.95	
Coupeville	71	35	53.4	2.13	
Crescent	85	31	55.8	1.54	
Dayton	87	36	58.4	1.41	
Ellensburg	86	31	55.8	0.42	
Ellensburg (near)	90	36	57.6	0.27	
Grandmound	80	39	55.8	4.36	
Granite Falls				6.12	
Hooper	86	37	59.0	1.11	
Issaquah				5.15	
Lacenter	80	38	56.5	4.72	
Lakeside	84	40	60.6	0.89	
Lind	92	32	61.8	0.88	
Loomis	87	39	59.4		
Mayfield	84	31	58.0	7.73	
Montecristo	79	32	51.1	13.62	T.
Mottinger Ranch	89	45	63.6	0.83	
Mount Pleasant	77	39	55.6	6.15	
Moxee Valley	88	34	58.8	0.37	
New Whatcom	68	39	54.3	3.68	
Northport	89	30	55.6	1.72	
Olga	68	40	53.9	2.56	
Olympia	80	38	55.4	5.34	
Pasco	93	35	64.4	0.19	
Pinehill	88	37	59.6	0.29	
Pomeroy	84	42	60.0	2.55	
Port Townsend	67	40	53.2	2.66	
Pullman	80	37	55.2	2.70	
Republic	91	27	53.5	2.35	T.
Rosalia	78	34	54.2	2.42	
Sedro	78	33	54.2	3.88	
Shoalwater Bay [10]	64	45	55.2		
Silvana	70	35	54.6	4.55	
Snohomish	72	40	57.8	4.62	
Snoqualmie				5.98	
Southbend	74	38	54.7	5.60	
Sprague				0.10	
Sunnyside	86	36	60.2	0.46	
Twin	68	37	52.4	5.12	
Union	77	35	54.4	6.18	
Vancouver	81	37	56.5	4.40	
Waterville	86	31	55.6	0.72	
Wenatchee (near)	86	33	58.3	0.54	
Westsound	71	35	54.6	2.04	
Wilbur	84	25	55.0	1.60	
West Virginia.					
Beckley	86	26	57.0	2.16	
Beverly	92	24	60.3	3.75	
Bluefield	88	30	61.2	4.90	
Buckhannon *b*	91	26	61.2	3.31	
Burlington	93	29	62.4	1.45	
Cairo	93	26	64.2		
Central	92	25	62.6	3.41	
Chapel	96	31	64.4	6.30	
Charleston				3.11	
Dayton	93	25	61.0	3.08	
Eastbank	93	34	67.8	3.52	
Elkhorn	90	32	62.2	5.74	
Fairmont				2.99	
Glenville	94	27	62.6	4.30	
Grafton	92	21	62.0	2.72	
Green Sulphur Springs	89	32	62.2	4.32	
Harpers Ferry				2.41	
Hinton *a*				2.96	
Hinton *b*	92	31	59.9		
Huntington	94	31	66.0	4.02	
Lewisburg	89	28	60.8	2.43	
Marlinton	87	27	59.5	2.80	
Martinsburg	94	35	63.0	0.35	
Morgantown	94	28	63.2	2.14	
New Martinsville	93	29	63.8	3.47	
Nuttallburg	90	28	62.6	3.41	
Oceana	93	30	62.8	3.62	
Oldfields	93	27	63.4	1.63	
Parsons	92	25	60.9	1.70	
Philippi *a*	92	28[d]	60.8	2.71	
Point Pleasant	98	31	66.4	3.71	
Romney	95	30	63.5	1.08	
Rowlesburg				1.36	
Spencer	94	26	63.3	3.94	
Terra Alta	85	29	63.8	1.50	
Uppertract	91[e]	24	62.0	3.60	
Wellsburg	87	28	62.2	1.55	
Weston *a*				4.43	
Weston *b*	94	27	64.4		
Wheeling *a*				2.77	
Wheeling *b*	92	34	68.0	2.69	
Wiggins	90	32	62.2		
Wisconsin.					
Amherst	88	22	58.7	2.11	
Ashland				0.76	
Barron	90	22	56.6	1.71	
Bayfield	85	32	54.9	0.90	
Beloit	88	31	61.2	1.64	
Brodhead	91	27	62.4	1.08	
Butternut	91	16	54.1	0.91	
Citypoint	91	26	63.0	2.34	
Delavan	90	30	61.6	0.71	
Dodgeville	87	26	60.2	3.77	
Easton	90	20	59.8	1.46	
Eau Claire	92	27	61.8	0.75	
Florence	89	22	54.4	1.70	
Fond du Lac	88	27	59.7	1.19	
Grand River Locks				1.40	
Grantsburg	92	19	57.2	1.31	
Hartford	88	24	60.4	1.07	
Hartland	88	29	60.1	1.10	
Harvey	90	30	61.4	1.59	
Hayward	91	16	58.0	0.32	
Heafford	90	21	56.3	1.34	
Hillsboro	88	23	59.4	1.74	
Knapp	92	21	58.2	0.04	
Koepenick [11]	82	32	55.8	1.50	
Lancaster	87	30	60.6	2.72	
Madison	84	32	60.6	1.86	
Manitowoc	84	28	54.3	1.12	
Meadow Valley	90	26	59.8	1.83	
Medford	91	16	54.2	2.50	
Menasha				1.02	
Neillsville	88	22	58.6	1.99	
New London	90	25	58.8	1.11	
Oconto	90	26	56.4	2.77	
Osceola	92	16	58.2	0.36	
Oshkosh	83	34	58.6	2.30	
Pepin	91	27	61.6	0.66	
Pine River	91	23	59.5	2.04	
Portage	89	30	61.3	0.86	
Port Washington	90	24	56.0	1.22	
Prairie du Chien *a*	92	31	63.9	3.02	
Prairie du Chien *b*				2.71	
Prentice	88	22	56.7	1.55	
Racine	87	31	58.0	1.75	
Sharon	87[d]	30[e]	61.9[d]	1.85	
Sheboygan		30		0.87	
Spooner	91	19	58.8	0.70	
Stevens Point	89	19	59.7	1.89	
Sturgeon Bay Canal [9]	84	28	51.2		
Two Rivers [10]	80	32	52.8		
Valley Junction	90	24	59.2	1.58	
Viroqua	86	30	60.4	2.99	
Watertown	88	28	60.3	1.99	
Waukesha	87	31	59.2	1.21	
Wausau	88	23	58.9	1.47	T.
Wausaukee [f]	90	23	55.2	1.46	
Westfield	89	26	60.6	1.05	
Whitehall	88	22	61.2	2.26	
Wyoming.					
Alcova	93	30	58.4	0.50	
Basin	89	36	59.8	0.58	
Bedford [k]	81	25	48.8	1.65	
Bitter Creek	95	18	57.8	T.	
Buffalo	91	32	58.6	T.	
Burlington	94	38	61.8	T.	
Carbon	83	26	55.3	0.34	
Centennial	81	16	48.0	0.45	
Cody	92	31	57.4	0.22	
Daniel	90	18	47.1	0.77	
Dome Lake	66	23	39.6	1.44	12.0
Embar	86	30	58.0	0.38	
Evanston	77	24	48.5	0.85	
Fort Laramie	93	30	60.2	0.45	
Fort Washakie	85	28	54.5	0.42	
Fort Yellowstone	77	30	50.5	2.42	
Fourbear	78	26	50.2	0.82	T.
Hyattville	88	33	57.4	0.05	
Iron Mountain	83	22	53.5	0.68	
Laramie	78	24	50.8	0.24	
Lovell	97	31	61.1	0.51	
Lusk	86	30	57.4	0.34	
Parkman	87	32	56.0	0.70	
Pinebluff	94	37	66.0	T.	
Rawlins	82	27	52.1	0.17	
Saratoga	84	26	52.6	0.76	
Sheridan	91			0.70	
Southpass City	75	22	48.0	0.84	
Thayne	77	29	50.8	1.43	
Thermopolis	90	33	58.8	1.10	
Wheatland [k]	93	34	63.4	0.31	
Cuba.					
Aguacate	93	63	78.4	13.62	
Anstralia	96	63	79.6	8.12	
Banaguises	92	64	77.8	9.49	
Batabano	96	67	80.2	10.26	
Camajuani	93	59	77.4	12.07	
Cardenas	94	69	81.1	11.28	
Cruces				4.54	
Guabairo				6.93	
Guanajay	89	75	83.6	10.39	
Guantanamo	96	62	78.4	10.07	
Guines	94	72	84.0	17.02	
Holguin	93	67	78.4	8.78	
Limonar				6.17	
Manzanillo	93	70	83.7	10.23	
Matanzas	93	64	77.2	9.17	
Moron Trocha	94	62	79.9	16.52	
Nuevitas	96	67	81.2	12.42	
Pinar del Rio	94	67	79.4	12 57	
Sagua la Grande	97	64	78.6	13.52	
Santa Clara	96	64	79.5	15.97	
Soledad	92	68	78.8	6.81	
Union de Reyes	91	72	79.4	13.78	
Puerto Rico.					
Adjuntas	92	60	76.0	9.47	
Aguadilla	88	65	80.8	6.75	
Arecibo	90	67	77.0	3.16	
Bayamon	95	63	79.2	9.45	
Caguas	89	66	78.0	7.85	
Canovanas	93	72	80.2	5.57	
Coamo	94	65	79.0	4.15	
Corozal	96	62	78.2	4.15	
Fajardo	88	69	79.9	2.94	
Hacienda Coloso	94	66	79.8	10.27	
Hacienda Perla	90	69	78.6	19.14	

TABLE II.—*Climatological record of voluntary and other cooperating observers*—Continued.

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Puerto Rico—Cont'd.	°	°	°	*Ins.*	*Ins.*
Humacao	97	70	81.0	10.79	
Isabela	91	69	80.1	.....	
La Isolina	91	65	76.5	12.01	
Lajas	95	61	79.6	2.80	
Manati	97	66	79.4	7.07	
Maunabo	88	74	81.2	6.17	
Mayaguez	92	69	80.6	6.14	
Ponce	90	69	79.1	3.03	
Port America [7]	89	70	80.2	4.37	
Puerta de Tierra	92	72	80.4	4.70	
San German	92	56	75.2	4.46	
San Lorenzo	90	66	78.8	10.13	
Utuado	95	.....	.....	4.25	
Vieques	88	68	77.7	6.30	
Yanco	95	66	81.6	1.70	
Mexico.					
Ciudad P. Diaz	94	59	77.4	5.82	
Coatzacoalcos	110	68	82.2	5.64	
Leon de Aldamas	92	47	70.0	0.31	
Puebla [8 1]	85	55	68.4	1.48	
Tampico	93	71	82.8	0.29	
Topolobampo [8 1]	101	64	76.6	0.00	
Vera Cruz	94	72	82.7	2.48	
New Brunswick.					
St. John	84	32	47.0	6.22	

Late reports for April, 1900.

Alaska.					
Coal Harbor	47	10	32.2	16.88	27.5
Juneau	61	30	41.2	11.37	3.0
Kenai	58	10	35.2	0.52	2.5
Killisnoo	53	27	40.7	6.85	1.5
Orca	64	25	39.6	16.35	10.0
Skagway	58	21	35.5	4.12	8.0
Wood Island	54	11	37.8	2.60	5.5
Arkansas.					
New Gascony	84	34	64.8	7.36	
Oregon	85	29	60.0	4.31	

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
California.	°	°	°	*Ins.*	*Ins.*
Fort Tejon	.....	.....	.....	1.52	
Mutah Flat	.....	.....	.....	0.40	
Placerville	78	28	50.4	4.32	
District of Columbia.					
Distrib. Reservoir [8 5]	82	34	56.1	1.86	
Florida.					
Rockwell	.....	.....	.....	6.47	
Georgia.					
Blakely	83	35	67.6	5.73	
Iowa.					
Burlington	83	27	55.4	3.78	
Pella	80[4]	24[4]	53.0[4]	2.55	0.5
Maine.					
Bar Harbor	.....	....	.....	3.15	T.
Michigan.					
Ewen	80	.....	.....	2.20	
Omer	.....	.....	.....	1.65	1.5
New York.					
Avon	.....	20	.....	1.10	2.0
Fleming	73	22	43.8	0.45	T.
Oklahoma.					
Clifton	.....	31	.. ...	4.39	.....
South Carolina.					
Society Hill	85	34	63.4	5.07	
South Dakota.					
Wessington Springs [1]	79	20	46.2	1.50	
Texas.					
Laureles Ranch	.....	.....	.....	2.93	
San Antonio	87	36	69.2	9.44	
Utah.					
Meadowville	.....	.....	.....	1.09	.....
Richfield	65	20	39.5	0.60	5.5
Terrace [8 1]	78	29	44.4	.....	.....
Woodruff	68	21	40.4	1.20	12.0
West Virginia.					
Terra Alta	75	18	49.8	1.50	2.0
Washington.					
Westbend	80	24	52.9	1.12	1.2

EXPLANATION OF SIGNS.

* Extremes of temperature from observed readings of dry thermometer.

A numeral following the name of a station indicates the hours of observation from which the mean temperature was obtained, thus:

[1] Mean of 7 a. m. + 2 p. m. + 9 p. m. + 9 p. m. + 4.
[2] Mean of 8 a. m. + 8 p. m. + 2.
[3] Mean of 7 a. m. + 7 p. m. + 2.
[4] Mean of 6 a. m. + 6 p. m. + 2.
[5] Mean of 7 a. m. + 2 p. m. + 2.
[6] Mean of readings at various hours reduced to true daily mean by special tables.
[7] Mean from hourly readings of thermograph.
[9] Mean of sunrise and noon.
[10] Mean of sunrise, noon, sunset, and midnight.

The absence of a numeral indicates that the mean temperature has been obtained from daily readings of the maximum and minimum thermometers.

An italic letter following the name of a station, as "Livingston *a*," "Livingston *b*," indicates that two or more observers, as the case may be, are reporting from the same station. A small roman letter following the name of a station, or in figure columns, indicates the number of days missing from the record; for instance "a" denotes 14 days missing.

No note is made of breaks in the continuity of temperature records when the same do not exceed two days. All known breaks, of whatever duration, in the precipitation record receive appropriate notice.

CORRECTION.

April, 1900, Iowa, Estherville, make total precipitation 2.06 instead of 2.16. Utah, Marysvale, make total precipitation 1.65 instead of 1.60.

NOTE.—The following changes have been made in the names of stations: California, Johnsville, changed to Beverly. Wyoming, Burns, changed to Daniel.

TABLE III.—*Mean temperature for each hour of seventy-fifth meridian time, May*, 1900.

Stations.	1 a. m.	2 a. m.	3 a. m.	4 a. m.	5 a. m.	6 a. m.	7 a. m.	8 a. m.	9 a. m.	10 a. m.	11 a. m.	Noon.	1 p. m.	2 p. m.	3 p. m.	4 p. m.	5 p. m.	6 p. m.	7 p. m.	8 p. m.	9 p. m.	10 p. m.	11 p. m.	Midn't.	Mean.
Bismarck, N Dak....	57.4	55.6	53.9	52.7	51.7	50.4	50.0	53.4	57.1	62.0	65.8	68.7	71.5	73.3	74.8	75.8	76.0	75.6	74.5	72.7	68.6	63.9	61.6	59.0	63.6
Boston, Mass	50.6	49.8	48.7	48.0	47.6	48.2	50.2	52.5	54.8	56.4	57.5	58.1	59.5	60.1	60.6	60.8	60.3	59.6	58.0	56.2	55.2	54.4	53.1	52.1	54.7
Buffalo, N. Y.....	51.8	51.2	51.3	50.0	49.1	49.1	49.5	50.9	52.6	54.1	55.5	56.5	57.1	57.7	57.8	57.6	57.5	57.6	56.9	55.9	54.9	54.6	54.0	52.9	54.0
Cedar City, Utah....	55.7	55.3	53.6	52.2	51.5	51.0	50.3	49.6	52.0	55.3	58.9	61.5	63.4	64.9	66.2	67.5	68.2	68.5	68.0	66.8	65.2	61.4	59.8	58.0	59.4
Chicago, Ill.....	56.5	56.2	55.6	54.9	54.0	53.3	53.0	55.1	56.5	58.2	60.1	60.6	60.9	61.8	62.4	61.6	61.2	61.4	60.1	59.3	58.7	58.2	57.1	56.8	58.1
Cincinnati, Ohio....	61.4	60.3	59.2	58.7	57.9	57.5	58.0	60.5	63.7	66.6	68.9	70.6	72.2	73.1	73.5	74.2	74.4	73.4	71.6	70.3	67.9	66.5	64.5	63.3	66.2
Cleveland, Ohio	56.6	56.0	55.4	54.7	54.0	53.9	55.4	57.2	59.3	59.7	60.6	61.0	61.3	62.2	63.4	64.2	63.9	64.5	63.9	62.9	61.7	59.9	58.7	57.8	59.5
Detroit, Mich.....	54.7	53.9	53.2	52.8	52.1	52.1	52.8	55.5	57.4	59.7	61.6	64.2	65.1	66.0	67.4	67.6	67.0	66.3	64.3	61.6	59.8	58.0	56.5	55.7	59.4
Dodge, Kans.....	58.4	57.8	56.8	56.3	55.5	54.8	54.4	55.9	59.6	63.1	66.7	68.8	70.7	71.9	73.0	73.2	73.2	73.1	71.4	69.2	65.8	63.3	61.4	60.2	63.9
Eastport, Me.....	42.2	41.8	41.2	40.9	40.8	42.0	43.8	45.4	47.3	48.7	49.4	50.0	50.9	50.8	51.1	50.5	49.5	48.4	47.0	46.5	45.2	44.7	43.7	43.1	45.8
Galveston, Tex.....	74.7	74.5	74.2	74.1	74.0	73.9	73.6	74.3	74.6	75.5	76.5	77.6	78.1	78.6	79.1	78.9	78.7	77.9	77.5	76.9	76.2	75.8	75.5	75.4	76.1
Havre, Mont.....	53.8	51.9	50.1	49.0	47.9	47.0	46.2	47.5	51.1	55.0	59.5	62.9	65.2	67.0	67.9	68.7	69.6	69.5	68.8	67.8	65.6	62.8	58.1	55.8	58.7
Independence, Cal..	75.0	63.3	61.7	60.7	59.5	57.9	57.0	56.9	56.4	58.5	62.4	65.8	68.8	71.6	73.7	74.8	76.1	76.5	76.7	76.6	74.5	71.7	69.5	67.4	66.8
Kalispell, Mont	49.6	48.2	46.8	45.7	44.5	43.8	42.7	42.8	44.2	47.1	50.7	53.6	56.1	57.3	58.7	60.3	61.3	61.7	61.0	60.7	59.8	57.7	54.7	51.5	52.2
Kansas City, Mo.....	63.2	62.5	61.5	60.6	59.7	59.2	59.1	60.4	62.8	65.3	68.1	69.9	71.4	72.3	73.5	73.6	73.9	73.8	72.6	70.9	68.7	67.3	66.0	64.9	66.7
Key West, Fla.....	75.7	75.7	75.5	75.5	75.6	75.7	76.4	77.0	77.8	78.7	79.2	80.0	79.6	79.3	79.2	79.1	78.9	77.7	77.1	77.1	76.6	76.1	76.0	75.6	77.3
Marquette, Mich	50.1	49.2	48.9	47.9	47.9	47.8	48.4	51.3	52.4	53.4	54.7	55.1	55.5	55.7	55.9	55.8	54.9	54.7	54.6	54.5	53.4	52.7	52.0	51.7	52.4
Memphis, Tenn.....	67.1	66.1	65.2	64.5	64.0	63.5	64.2	65.6	68.4	70.4	72.3	73.8	75.1	75.9	77.0	77.6	77.7	77.4	76.5	74.8	72.5	71.1	69.7	68.4	70.8
Mt. Tamalpais, Cal..	53.0	52.8	52.4	51.8	51.5	51.4	51.1	50.9	50.4	51.3	52.9	54.7	56.5	57.9	59.6	59.6	59.8	59.8	58.8	57.8	56.4	54.5	54.0	53.8	54.7
New Orleans, La.....	70.9	70.5	70.1	69.7	69.4	69.1	69.9	71.0	74.7	76.7	78.4	79.5	80.0	79.8	80.3	80.4	80.1	79.1	77.8	76.6	74.4	73.4	72.4	71.5	74.8
New York, N. Y.....	56.9	55.8	55.3	54.9	54.5	54.7	55.7	57.1	58.7	61.3	63.6	65.0	65.5	66.5	66.5	66.7	66.7	65.3	63.5	62.0	61.3	59.9	59.2	58.4	60.6
Philadelphia, Pa.....	57.5	56.6	56.1	55.8	55.2	55.8	58.0	60.5	62.6	65.1	67.2	69.0	70.1	70.9	70.5	70.1	69.1	68.0	66.2	64.2	61.8	60.8	59.4	58.7	62.9
Pittsburg, Pa.....	59.9	58.8	57.7	57.0	56.5	56.1	56.8	58.9	62.7	65.6	67.9	69.5	70.9	72.0	72.4	72.2	72.5	71.7	69.9	67.9	66.4	64.7	63.0	61.9	64.7
Portland, Oreg.....	55.1	54.3	53.7	53.2	52.3	51.8	51.0	50.8	50.6	51.0	52.5	54.4	56.0	57.2	59.2	60.4	61.6	62.2	62.4	62.1	61.4	60.1	58.6	57.0	56.2
St. Louis, Mo.....	65.1	64.1	63.4	62.7	61.8	61.2	61.5	63.2	65.5	68.0	70.6	72.0	73.5	74.6	75.3	75.9	75.6	75.1	73.8	72.2	70.1	68.8	67.5	66.3	68.6
St. Paul, Minn.....	58.9	57.2	55.7	54.1	52.9	51.7	51.1	52.7	55.7	59.5	62.4	65.0	67.7	69.4	70.8	71.6	72.3	71.8	71.3	70.0	68.2	65.1	63.2	61.3	62.5
Salt Lake City, Utah.	56.4	55.6	54.1	53.4	52.7	51.9	51.5	52.3	53.8	58.0	61.6	64.2	66.1	67.1	68.4	69.3	69.4	69.5	69.0	68.4	66.5	63.4	60.7	58.4	60.9
San Diego, Cal.....	59.6	59.0	58.5	58.1	57.9	57.6	57.5	56.9	56.7	57.9	59.1	60.7	62.1	62.6	63.7	64.3	64.5	64.4	63.8	63.8	62.8	61.6	60.7	60.2	60.6
San Francisco, Cal...	53.9	53.3	52.7	52.3	51.8	51.5	51.5	52.2	51.2	53.2	55.4	57.4	59.4	60.8	61.8	62.1	61.9	61.8	60.0	59.0	57.8	56.1	54.9	54.5	56.1
Santa Fe, N. Mex ...	55.0	53.7	52.0	51.2	49.8	49.3	47.9	49.6	54.0	56.1	58.3	60.0	62.4	64.0	65.7	66.4	66.8	66.0	64.9	63.5	61.5	58.8	57.5	56.5	58.0
Savannah, Ga.....	67.9	67.4	66.7	66.2	65.8	65.8	67.5	69.8	72.4	74.7	76.7	78.5	79.6	79.9	79.7	78.6	77.0	75.1	73.1	71.9	70.4	69.6	69.1	68.6	72.2
Washington, D. C....	58.3	57.2	56.3	55.5	54.7	54.4	57.0	60.8	63.6	66.5	69.3	70.9	72.5	73.6	74.1	74.1	73.7	72.9	69.8	67.0	64.4	63.0	61.3	59.9	64.6
West Indies.																									
Basseterre, St. Kitts.	77.2	76.9	76.9	77.2	77.4	78.6	80.2	81.0	81.9	82.4	83.3	83.2	83.2	82.8	82.3	81.4	80.1	79.0	78.6	78.8	78.5	78.0	77.7	77.4	79.7
Bridgetown, Bar.....	77.2	76.9	76.7	76.5	76.8	79.0	81.1	82.1	83.1	84.1	84.5	84.2	84.0	83.7	82.7	81.5	80.0	79.0	78.6	78.4	78.1	77.9	77.7	77.4	80.0
Cienfuegos, Cuba ...	74.7	74.3	74.2	73.7	73.3	73.5	74.5	78.0	80.2	82.0	83.7	84.6	85.2	85.1	84.0	83.4	82.0	80.7	79.3	78.4	77.5	76.8	75.9	75.5	78.8
Havana, Cuba.....	74.5	74.2	74.2	74.0	73.8	73.7	74.0	76.9	78.5	79.9	80.9	81.0	81.0	80.9	80.2	79.5	78.5	78.1	77.4	76.8	76.4	76.0	75.5	75.1	77.1
Kingston, Jamaica..	74.8	74.5	73.9	73.7	73.6	73.4	75.4	79.4	81.3	83.2	83.7	84.8	84.5	84.3	83.4	83.1	82.5	81.3	79.8	78.4	77.3	76.3	75.6	75.0	78.9
Port of Spain, Trin..	74.6	74.1	73.8	73.7	73.5	74.6	77.7	81.3	83.0	84.1	85.4	85.9	85.4	85.1	84.2	82.9	81.2	79.5	78.5	77.9	77.0	76.3	75.8	75.2	79.2
P. Principe, Cuba ...	72.4	71.9	71.7	71.6	71.7	71.5	72.6	76.5	78.2	80.5	82.6	84.1	84.7	85.6	85.5	82.3	80.1	79.1	77.3	75.2	74.3	73.8	73.3	72.6	77.0
Roseau, Dominica ..	76.6	76.2	75.9	75.8	75.6	76.5	79.2	81.2	83.2	84.5	85.3	85.4	85.2	85.0	83.9	82.8	81.5	79.7	78.8	78.5	78.0	77.9	77.3	76.9	80.0
San Juan, P. R.....	75.7	75.4	75.0	74.9	74.6	75.5	78.1	80.2	81.1	81.8	82.4	82.9	82.5	82.4	82.0	81.6	80.6	79.4	78.7	78.2	77.4	77.0	76.6	76.1	78.8
Santiago de Cuba...	75.5	75.2	75.0	74.8	74.4	75.3	78.3	80.2	83.2	84.7	85.8	86.8	86.6	85.6	83.9	82.8	81.8	80.8	79.7	79.1	78.3	77.6	77.1	76.3	79.9
Santo Domingo, S. D.	74.5	74.2	73.8	73.6	73.1	73.3	75.6	79.3	81.1	81.9	82.5	82.9	82.8	82.6	81.9	81.0	80.4	79.5	78.8	78.4	77.4	76.5	75.9	75.1	78.2
Willemstad, Curaçao	78.6	78.4	78.5	78.4	78.4	78.8	80.8	82.1	83.3	83.9	85.1	85.2	85.2	85.1	84.6	83.5	82.2	81.0	80.2	79.9	79.8	79.6	79.5	79.1	81.3

TABLE IV.—*Mean pressure for each hour of seventy-fifth meridian time, May*, 1900.

Stations.	1 a. m.	2 a. m.	3 a. m.	4 a. m.	5 a. m.	6 a. m.	7 a. m.	8 a. m.	9 a. m.	10 a. m.	11 a. m.	Noon.	1 p. m.	2 p. m.	3 p. m.	4 p. m.	5 p. m.	6 p. m.	7 p. m.	8 p. m.	9 p. m.	10 p. m.	11 p. m.	Midn't.	Mean.
Bismarck, N. Dak....	28.164	.167	.171	.170	.173	.177	.184	.188	.193	.194	.186	.174	.163	.152	.141	.132	.123	.117	.116	.119	.127	.140	.153	.161	.158
Boston, Mass.....	29.799	.799	.799	.803	.813	.823	.828	.830	.827	.818	.812	.796	.788	.776	.771	.769	.768	.773	.783	.795	.807	.809	.813	.811	.801
Buffalo, N. Y.....	29.121	.119	.117	.118	.125	.134	.144	.149	.150	.152	.150	.144	.135	.127	.119	.111	.106	.106	.111	.116	.125	.129	.128	.129	.138
Cedar City, Utah....	24.243	.243	.242	.239	.238	.238	.241	.245	.259	.268	.272	.270	.267	.261	.251	.240	.230	.218	.212	.211	.213	.221	.233	.241	.242
Chicago, Ill.	29.093	.085	.081	.079	.082	.090	.100	.111	.113	.112	.113	.113	.108	.100	.092	.083	.077	.071	.071	.075	.081	.088	.092	.097	.092
Cincinnati, Ohio	29.311	.308	.306	.306	.314	.327	.340	.346	.348	.347	.342	.337	.325	.316	.297	.290	.284	.283	.289	.294	.305	.313	.313	.315	.315
Cleveland, Ohio	29.140	.138	.142	.147	.156	.165	.173	.179	.180	.180	.179	.172	.159	.149	.139	.131	.128	.125	.126	.129	.137	.142	.146	.147	.150
Detroit, Mich.....	29.169	.166	.165	.167	.173	.181	.190	.195	.197	.195	.191	.186	.180	.170	.159	.150	.145	.142	.143	.153	.165	.173	.175	.175	.171
Dodge, Kans	27.370	.367	.363	.363	.365	.368	.377	.386	.390	.390	.384	.381	.372	.361	.347	.336	.319	.311	.310	.316	.326	.337	.353	.358	.356
Eastport, Me	29.830	.830	.831	.834	.839	.846	.851	.852	.846	.842	.832	.824	.815	.808	.802	.800	.801	.809	.822	.837	.835	.837	.839	.840	.829
Galveston, Tex.....	29.878	.874	.868	.867	.867	.873	.886	.895	.910	.915	.918	.911	.900	.890	.880	.867	.857	.850	.845	.849	.864	.875	.883	.883	.879
Havre, Mont.....	27.260	.265	.266	.264	.265	.270	.273	.276	.279	.280	.276	.271	.262	.252	.242	.239	.232	.227	.226	.227	.232	.243	.257	.265	.256
Independence, Cal..	25.904	.910	.915	.916	.914	.916	.920	.925	.942	.956	.962	.957	.953	.946	.930	.912	.898	.881	.867	.857	.854	.858	.872	.889	.912
Kalispell, Mont	26.876	.877	.878	.880	.880	.883	.890	.895	.901	.903	.901	.896	.890	.883	.877	.869	.858	.853	.847	.844	.843	.851	.865	.877	.876
Kansas City, Mo.....	28.951	.947	.940	.940	.943	.947	.956	.968	.973	.974	.972	.967	.955	.946	.933	.930	.911	.905	.908	.911	.918	.932	.939	.944	.942
Key West, Fla.....	29.956	.946	.936	.935	.936	.944	.956	.963	.972	.977	.976	.972	.965	.952	.936	.925	.921	.919	.925	.939	.947	.959	.965	.965	.949
Marquette, Mich ...	29.161	.160	.158	.158	.168	.176	.186	.194	.193	.193	.194	.192	.187	.184	.175	.169	.166	.164	.162	.163	.166	.168	.167	.170	.174
Memphis, Tenn.....	29.564	.557	.555	.555	.560	.570	.584	.595	.600	.604	.605	.599	.588	.576	.560	.546	.534	.531	.531	.536	.545	.556	.564	.565	.566
Mt. Tamalpais, Cal .	27.539	.536	.538	.531	.523	.519	.519	.515	.528	.541	.551	.558	.565	.567	.565	.560	.552	.545	.535	.527	.517	.515	.519	.527	.537
New Orleans, La.....	29.912	.906	.904	.906	.910	.918	.930	.940	.947	.949	.949	.945	.938	.930	.916	.906	.898	.891	.892	.894	.906	.915	.920	.920	.918
New York, N. Y.....	29.616	.615	.615	.617	.625	.636	.645	.652	.647	.641	.632	.620	.611	.600	.587	.583	.576	.578	.590	.601	.615	.621	.625	.627	.616
Philadelphia, Pa.....	29.848	.846	.848	.848	.857	.868	.874	.875	.875	.870	.862	.854	.842	.832	.823	.818	.816	.820	.827	.835	.850	.858	.862	.862	.849
Pittsburg, Pa.....	29.061	.059	.060	.064	.070	.081	.092	.097	.096	.092	.085	.078	.070	.057	.045	.034	.030	.032	.041	.048	.060	.069	.069	.070	.065
Portland, Oreg.....	29.876	.879	.881	.882	.881	.880	.879	.881	.889	.895	.900	.902	.901	.899	.893	.886	.880	.870	.863	.856	.855	.856	.862	.870	.880
St. Louis, Mo.....	29.354	.348	.346	.345	.352	.359	.369	.375	.380	.380	.379	.375	.366	.355	.342	.331	.323	.318	.319	.324	.333	.345	.351	.351	.351
St. Paul, Minn.....	29.042	.046	.047	.051	.056	.062	.072	.080	.080	.082	.075	.070	.055	.045	.035	.023	.012	.008	.005	.002	.010	.019	.030	.033	.043
Salt Lake City, Utah.	25.586	.589	.589	.587	.585	.588	.592	.597	.607	.612	.612	.610	.604	.595	.587	.574	.564	.554	.554	.549	.550	.556	.569	.579	.588
San Diego, Cal.....	29.885	.885	.882	.876	.869	.864	.865	.865	.874	.884	.888	.891	.891	.890	.889	.882	.872	.864	.858	.854	.854	.860	.868	.876	.874
San Francisco, Cal...	29.863	.861	.860	.855	.849	.846	.845	.846	.855	.865	.872	.875	.877	.875	.869	.861	.855	.846	.838	.833	.830	.832	.839	.852	.854
Santa Fe, N. Mex ...	23.278	.278	.277	.275	.275	.278	.285	.291	.300	.308	.303	.303	.294	.279	.268	.256	.243	.239	.236	.238	.245	.258	.272	.277	.273
Savannah, Ga.....	29.938	.932	.931	.933	.943	.958	.969	.978	.981	.982	.979	.967	.956	.944	.929	.923	.919	.920	.927	.935	.945	.951	.954	.954	.948
Washington, D. C....	29.853	.852	.856	.859	.869	.879	.887	.890	.890	.885	.877	.869	.856	.844	.828	.821	.815	.817	.825	.836	.848	.853	.859	.863	.856
West Indies.																									
Basseterre, St. Kitts.	29.949	.939	.936	.938	.947	.962	.975	.983	.987	.984	.975	.964	.946	.932	.923	.922	.927	.936	.956	.969	.978	.981	.976	.964	.956
Bridgetown, Bar.....	29.905	.900	.898	.902	.911	.925	.937	.944	.945	.940	.930	.912	.898	.889	.882	.884	.891	.901	.915	.928	.936	.939	.932	.920	.915
Cienfuegos, Cuba ...	29.870	.857	.847	.848	.854	.863	.879	.889	.894	.895	.890	.878	.865	.852	.837	.833	.834	.843	.858	.874	.889	.898	.896	.887	.868
Havana, Cuba.....	29.891	.881	.872	.867	.869	.877	.893	.903	.910	.913	.911	.903	.894	.883	.867	.864	.860	.865	.876	.889	.899	.908	.911	.903	.888
Kingston, Jamaica..	29.625	.612	.603	.603	.608	.619	.638	.644	.647	.642	.634	.620	.604	.587	.574	.565	.565	.574	.592	.609	.628	.638	.644	.638	.613
Port of Spain, Trin..	29.862	.855	.853	.859	.869	.884	.898	.904	.903	.894	.883	.861	.839	.823	.815	.815	.825	.835	.859	.876	.887	.895	.888	.875	.865
P. Principe, Cuba ...	29.599	.585	.575	.574	.583	.593	.609	.617	.622	.620	.615	.604	.590	.574	.562	.561	.565	.576	.592	.605	.615	.621	.624	.614	.596
Roseau, Dominica ..	29.922	.913	.912	.918	.927	.941	.950	.956	.957	.953	.944	.926	.912	.901	.896	.895	.902	.914	.926	.938	.943	.948	.946	.934	.928
San Juan, P. R.....	29.893	.885	.879	.885	.895	.906	.915	.922	.925	.919	.909	.895	.880	.866	.855	.852	.863	.877	.894	.907	.915	.922	.913	.903	.895
Santiago de Cuba...	29.838	.828	.820	.823	.829	.839	.851	.857	.863	.862	.851	.840	.820	.808	.800	.795	.803	.812	.826	.841	.854	.862	.861	.852	.835
Santo Domingo, S. D.	29.923	.910	.902	.900	.910	.924	.939	.946	.954	.950	.943	.930	.915	.899	.887	.881	.885	.898	.912	.927	.938	.948	.946	.936	.921
Willemstad, Curaçao	29.800	.794	.792	.798	.810	.834	.835	.841	.840	.834	.815	.798	.765	.749	.728	.722	.732	.750	.775	.795	.817	.828	.827	.816	.795

TABLE V.—*Average wind movement for each hour of seventy-fifth meridian time, May, 1900.*

Stations.	1 a. m.	2 a. m.	3 a. m.	4 a. m.	5 a. m.	6 a. m.	7 a. m.	8 a. m.	9 a. m.	10 a. m.	11 a. m.	Noon.	1 p. m.	2 p. m.	3 p. m.	4 p. m.	5 p. m.	6 p. m.	7 p. m.	8 p. m.	9 p. m.	10 p. m.	11 p. m.	Midnight.	Mean.
Abilene, Tex.	6.9	7.5	8.0	7.5	7.6	7.6	7.3	7.9	8.0	10.0	9.8	9.8	9.3	9.7	9.5	9.6	10.0	9.8	9.3	8.5	6.8	6.6	6.5	6.7	8.3
Albany, N. Y.	5.3	5.3	5.2	5.1	4.9	4.8	6.3	7.9	7.9	8.6	9.5	9.7	10.4	10.7	11.5	11.5	10.9	9.4	8.8	7.5	6.3	6.1	5.7	5.1	7.7
Alpena, Mich.	6.7	6.3	7.0	7.0	6.4	6.7	7.0	7.9	9.4	10.3	10.8	11.6	13.2	13.7	14.1	12.7	12.1	11.6	9.7	8.1	6.9	6.2	6.0	6.5	9.1
Amarillo, Tex.	13.1	13.0	13.2	11.9	11.5	11.8	11.9	11.2	12.6	14.7	15.2	14.8	15.2	14.9	14.2	14.7	14.9	14.7	14.6	16.2	14.1	13.3	13.2	13.4	13.7
Atlanta, Ga.	10.0	10.4	10.3	9.9	9.5	9.2	8.3	7.9	7.9	7.8	8.8	8.9	9.7	10.2	10.4	10.3	10.3	10.0	9.4	8.4	9.3	10.0	10.3	10.2	9.5
Atlantic City, N. J.	11.5	11.5	11.0	10.8	10.1	9.5	10.0	10.7	11.4	11.9	13.2	13.9	14.4	15.2	15.1	14.5	14.0	13.3	12.7	12.6	12.2	11.8	12.0	11.9	12.3
Augusta, Ga.	3.8	3.8	3.9	3.8	3.8	3.4	3.7	5.2	6.5	7.1	7.4	7.6	8.5	8.7	9.1	9.2	9.0	8.4	8.0	7.5	5.0	5.0	4.3	4.3	6.0
Baker City, Oreg.	3.8	4.1	5.0	4.6	5.5	6.8	6.4	5.6	5.6	5.4	4.4	4.2	4.6	5.6	6.5	7.4	7.9	8.0	8.0	7.5	6.8	5.9	4.4	3.7	5.8
Baltimore, Md.	3.6	3.7	3.3	3.4	3.6	3.4	4.1	5.0	5.6	6.3	7.0	7.0	7.3	7.6	8.0	8.3	8.1	7.5	6.6	5.6	4.5	4.5	3.9	3.8	5.5
Bismarck, N. Dak.	7.6	7.2	7.0	6.9	7.1	6.7	7.0	7.5	8.5	9.2	10.5	13.0	14.9	15.0	15.6	15.0	14.8	14.5	14.1	12.8	9.9	8.6	7.9	7.4	10.4
Block Island, R. I.	15.8	15.4	14.3	15.2	15.4	16.7	17.4	17.5	16.9	16.4	17.1	18.4	18.7	19.6	19.7	19.9	19.2	18.6	18.5	18.0	18.4	16.9	16.1	16.0	17.3
Boise, Idaho.	4.4	4.3	4.5	4.3	4.0	3.7	3.5	3.2	3.1	3.9	4.4	5.5	7.4	7.7	7.5	7.5	7.4	7.4	7.0	7.0	5.2	4.5	4.3	4.1	5.2
Boston, Mass.	9.7	10.2	9.7	9.0	9.5	9.0	9.7	10.7	10.9	11.6	12.3	13.2	13.8	13.8	14.3	13.3	12.1	11.4	10.1	9.9	9.1	8.8	8.8	8.6	10.8
Buffalo, N. Y.	10.4	11.0	11.3	11.1	11.2	10.7	11.7	12.2	12.3	12.9	13.5	13.7	14.2	13.8	14.5	14.8	14.7	13.3	12.5	12.5	11.7	11.3	11.5	10.3	12.4
Cairo, Ill.	5.4	5.4	5.5	6.0	5.9	6.2	5.1	6.3	7.2	7.7	8.2	9.4	9.6	10.2	10.8	10.5	10.0	9.3	8.8	6.6	5.4	5.1	6.0	5.7	7.3
Cape Henry, Va.	15.2	15.5	15.2	14.7	14 4	13.9	13.5	14.9	14.6	14.4	14.1	13.8	14.3	13.7	13.8	14.8	14.7	14.2	12.0	12.3	13.0	13.7	15.2	15.6	14.2
Carson City, Nev.	6.8	5.8	5.8	4.7	4.0	4.1	4.4	4.7	3.8	3.2	5.1	5.6	6.0	6.7	8.1	9.8	10.9	11.1	11.9	11.8	11.0	11.2	10.3	8.0	7.3
Cedar City, Utah.	7.8	9.1	8.1	6.9	6.6	6.1	6.3	6.1	6.0	4.8	5.4	6.7	8.5	9.4	10.1	10.9	10.4	10.5	9.8	9.2	11.7	6.0	6.2	7.3	7.7
Charleston, S. C.	8.5	8.6	8.7	8.5	8.7	8.4	6.8	10.7	11.1	11.5	11.8	12.8	12.8	13.6	14.3	14.5	14.0	13.4	11.6	12.3	13.0	8.5	8.1	8.1	10.6
Charlotte, N. C.	5.9	6.0	6.1	5.6	5.3	5.7	6.5	7.6	7.1	7.2	7.7	7.8	7.8	7.7	8.4	8.3	8.4	8.0	6.3	11.8	11.0	5.8	6.4	6.5	6.7
Chattanooga, Tenn.	4.3	4.9	4.2	3.5	3.0	3.9	3.8	4.4	5.7	6.8	7.7	8.6	9.6	10.0	10.4	10.1	10.4	10.2	8.5	6.2	4.9	4.2	4.0	4.2	6.4
Cheyenne, Wyo.	8.9	8.5	8.5	8.7	8 7	8.2	7.8	7.5	8.2	9.0	10.9	11.0	10.8	10.9	11.1	10.8	10.9	10.7	11.2	10.7	10.5	8.5	8.0	9.0	9.5
Chicago, Ill.	17.3	17.2	16.5	16.2	16.6	16.2	15.9	15.1	15.4	15.8	15.1	15.1	16.3	16.3	16.0	16.9	16.6	16.8	16.2	16.2	16.4	16.2	17.2	16.7	16.3
Cincinnati, Ohio.	4.1	4.5	4.5	4.4	4.0	4.7	6.1	7.2	7.7	9.2	9.4	10.3	10.3	9.8	10.0	9.7	9.5	9.4	8.7	7.2	6.1	4.5	4.8	4.4	6.9
Cleveland, Ohio.	13.0	13.4	12.7	13.6	13.4	12.6	12.3	13.1	13.4	14.1	13.5	14.1	14.1	13.7	12.9	12.9	12.4	11.3	10.3	10.7	10.6	11.6	13.0	12.5	12.7
Columbia, Mo.	6.1	5.8	5.5	5.8	5.7	5.8	5.9	6.0	6.5	7.2	7.9	8.5	8.5	8.6	8.5	8.6	8.6	8.0	7.8	6.6	6.3	6.3	5.9	6.0	6.9
Columbus, Ohio.	5.9	5.8	5.7	6.2	5.5	5.4	5.6	6.3	6.6	8.3	9.5	9.9	10.3	9.1	9.2	8.6	10.2	9.5	8.1	7.3	6.2	6.2	6.3	5.8	7.5
Concordia, Kans.	6.3	6.1	4.9	4.9	5.2	5.7	5.5	5.5	6.8	8.0	8.5	8.8	8.7	10.4	9.7	10.2	9.5	8.7	7.9	7.2	6.1	5.2	4.8	5.4	7.1
Corpus Christi, Tex.	13.2	12.4	11.7	11.5	10.2	9.5	9.2	9.4	10.1	11.5	12.5	13.8	14.8	15.4	16.3	17.3	17.7	17.6	16.9	16.3	16.1	15.6	14.3	13.8	13.8
Davenport, Iowa.	4.8	5.0	5.1	5.0	4.8	4.7	5.1	6.0	6.7	7.2	8.0	8.6	9.4	8.5	8.5	8.8	8.3	7.6	7.4	5.9	4.9	4.8	5.1	6.5	6.5
Denver, Colo.	6.3	5.8	6.1	6.5	6.5	6.3	5.8	5.4	4.7	5.3	6.0	7.3	8.1	9.1	8.9	9.5	9.9	9.9	9.5	9.5	9.1	8.6	8.0	7.6	
Des Moines, Iowa.	6.5	6.5	6.2	5.7	6.1	5.6	5.9	6.5	8.3	8.7	9.5	9.9	10.7	10.9	11.8	11.5	10.8	9.8	9.4	9.5	5.5	5.8	6.4	8.2	
Detroit, Mich.	7.5	7.6	7.4	7.6	7.9	8.1	7.1	8.1	8.8	9.2	10.0	10.9	11.3	12.1	11.3	11.5	10.2	13.1	9.4	8.2	7.6	7.6	7.3	8.8	
Dodge, Kans.	8.3	8.3	7.7	6.9	6.6	7.1	7.1	8.7	8.8	11.1	11.3	12.0	12.1	12.3	12.7	11.6	12.5	13.1	8.7	7.1	9.3	7.6	8.8	9.9	
Dubuque, Iowa.	4.9	4.7	4.4	4.6	4.5	4.6	5.1	6.7	5.7	10.4	9.1	9.3	9.4	9.7	9.9	9.6	9.6	9.6	8.2	7.1	6.2	5.5	5.2	7.0	
Duluth, Minn.	8.5	8.2	7.9	8.3	8.1	8.1	7.8	8.8	8.7	9.6	10.2	11.1	11.9	12.2	12.6	12.7	12.7	11.4	10.6	9.2	7.5	8.5	8.9	8.7	
Eastport, Me.	8.3	7.7	7.4	6.9	7.6	7.7	8.3	8.9	9.2	9.7	11.5	12.8	13.2	13.7	14.4	14.0	12.7	12.6	10.9	9.3	7.5	8.8	9.0	8.8	9.7
Elkins, W. Va.	2.1	2.1	2.2	1.8	1.9	1.9	2.8	3.7	5.3	7.1	7.5	7.9	7.8	8.2	8.2	7.7	6.6	5.5	4.3	3.8	2.9	2.4	2.5	4.5	10.2
El Paso, Tex.	11.5	10.6	9.9	9.9	9.8	10.3	9.8	8.6	10.1	11.2	11.7	12.3	11.9	12.1	12.3	13.9	13.0	15.1	15.3	15.0	13.0	12.1	11.4	11.7	
Erie, Pa.	9.0	9.3	9.9	9.8	9.2	9.5	9.7	11.1	11.6	11.4	11.4	10.7	11.3	11.5	12.0	10.8	9.1	8.2	8.0	7.5	7.6	7.4	7.9	9.8	
Escanaba, Mich.	6.5	6.1	6.4	6.5	6.0	6.2	6.9	7.6	8.5	10.1	11.2	11.9	12.0	11.8	12.3	12.3	11.8	10.1	8.7	7.1	6.4	6.8	5.9	7.3	
Eureka, Cal.	5.2	4.8	4.8	3.6	3.4	3.4	3.4	3.8	7.6	4.6	6.6	9.0	10.5	11.4	11.8	12.1	12.6	12.5	12.9	11.9	13.0	13.0	12.5	14.3	
Evansville, Ind.	4.7	5.1	4.4	4.6	5.2	4.9	6.5	7.4	7.6	8.5	9.3	8.5	9.3	9.8	10.3	11.8	12.1	12.6	12.4	12.1	13.0	12.1	12.6	12.5	
Fort Smith, Ark.	5.0	4.9	4.5	5.0	5.1	5.1	5.2	5.5	6.0	6.7	7.3	8.3	8.3	8.7	9.4	8.5	8.0	7.6	6.6	6.0	5.5	5.2	5.4	5.3	
Fort Worth, Tex.																									
Fresno, Cal.	7.7	8.2	7.9	7.3	6.7	6.2	5.8	6.0	5.5	5.9	5.9	6.1	5.6	5.9	5.6	6.1	6.5	6.2	6.4	7.2	7.2	6.7	6.6	7.3	
Galveston, Tex.	7.3	7.8	7.6	7.8	8.0	8.0	8.5	9.4	9.9	9.9	9.5	9.3	9.7	9.5	10.0	9.3	8.9	8.0	7.8	7.8	8.0	7.7	7.9	8.5	
Grand Haven, Mich.	8.8	9.3	9.3	8.9	9.2	9.1	9.2	9.7	10.0	10.2	10.3	10.4	10.6	10.2	9.5	10.0	9.3	8.9	7.6	8.0	8.0	9.2	9.3	9.3	
Grand Junction, Colo.	4.2	4.2	4.3	5.4	5.4	5.3	5.1	5.4	5.7	6.6	7.4	7.5	6.6	6.9	7.7	8.1	8.5	9.3	8.2	7.2	6.2	4.5	4.8	3.8	6.2
Green Bay, Wis.	6.3	6.3	6.2	5.8	6.1	6.2	5.6	6.3	6.8	7.4	8.5	9.3	9.2	9.6	9.6	10.2	10.2	9.4	8.9	8.2	7.3	7.6	6.6	7.8	
Harrisburg, Pa.	5.8	5.9	5.4	5.6	5.3	5.1	5.5	6.5	7.2	8.0	8.0	8.6	8.9	9.1	9.6	9.4	8.9	8.6	8.0	7.0	6.4	6.8	5.9	7.3	
Hatteras, N. C.	12.7	13.0	13.2	13.1	13.0	14.1	13.4	14.3	15.3	15.2	14.7	15.3	15.3	15.7	16.1	16.1	16.5	16.0	15.1	13.8	13.4	13.0	12.5	14.3	
Havre, Mont.	6.1	5.2	5.6	5.8	5.9	6.5	7.1	7.8	8.8	9.9	11.4	12.4	12.5	12.6	13.5	13.0	12.9	12.4	11.4	10.6	7.9	8.3	6.8	9.4	
Helena, Mont.	9.8	8.8	8.9	8.2	8.1	8.6	8.2	7.2	5.6	6.7	7.6	8.0	8.7	9.0	9.5	10.0	10.2	9.6	9.3	9.3	9.3	10.4	10.8	8.7	
Huron, S. Dak.	9.6	10.3	10.1	9.6	9.8	9.7	9.2	10.4	12.3	12.9	13.8	14.7	15.3	14.5	14.8	14.6	14.8	13.3	12.0	9.5	9.1	9.4	9.8	11.6	
Independence, Cal.	8.6	9.2	8.7	9.1	8.3	7.8	8.0	8.6	7.6	8.2	9.0	9.2	8.9	9.5	10.7	12.1	13.4	15.0	15.0	14.2	12.8	10.6	9.4	9.0	10.1
Indianapolis, Ind.	7.2	7.1	7.9	8.5	7.7	7.5	7.7	8.2	10.0	10.7	11.3	12.1	11.9	12.3	12.7	12.8	12.9	15.1	11.1	9.0	7.7	8.1	7.8	7.6	9.7
Jacksonville, Fla.	5.9	5.4	5.3	5.6	5.6	5.7	5.2	7.2	9.3	10.0	9.2	9.6	9.4	10.5	10.9	10.9	11.5	10.4	9.0	7.7	6.5	5.5	5.1	5.6	7.8
Jupiter, Fla.	9.5	9.5	9.2	8.8	8.4	9.2	8.8	10.0	10.0	10.8	10.6	11.8	11.5	12.4	10.9	11.5	10.8	9.8	9.9	10.2	10.2	10.5	10.1	10.3	
Kalispell, Mont.	5.4	5.1	5.2	5.4	5.7	5.5	5.7	5.6	4.8	5.4	6.6	7.9	8.7	8.8	11.9	9.4	9.2	8.7	8.7	7.0	5.5	4.4	4.8	6.4	
Kansas City, Mo.	7.1	6.6	6.8	6.6	6.8	6.8	6.5	6.8	7.8	8.5	8.8	8.9	9.4	9.3	9.4	9.5	8.9	9.3	9.1	8.7	7.2	6.9	7.3	7.6	7.9
Keokuk, Iowa.	6.1	5.8	5.5	5.5	5.0	5.1	5.4	5.9	6.2	7.8	8.5	8.5	8.5	9.0	8.5	8.4	9.2	7.4	6.9	5.8	5.5	5.4	5.7	5.4	6.6
Key West, Fla.	9.2	9.1	8.6	8.6	8.8	8.8	9.4	9.9	10.3	11.1	11.5	11.0	11.5	11.6	11.2	11.2	11.4	10.5	10.6	10.5	10.0	10.0	9.2	10.3	
Kittyhawk, N. C.	13.4	13.4	13.2	13.6	14.0	14.1	15.6	17.1	17.0	16.7	15.4	14.6	15.1	15.8	15.8	16.5	15.9	14.8	14.0	13.3	14.0	14.0	13.7	14.9	
Knoxville, Tenn.	4.8	4.6	4.4	4.4	4.6	4.5	4.5	4.7	6.0	7.4	8.5	8.7	9.3	9.2	9.6	9.7	9.6	9.3	9.1	7.9	6.5	6.1	5.9	5.5	6.9
La Crosse, Wis.	4.7	4.6	4.3	4.2	3.8	4.2	4.2	4.9	5.2	5.5	5.8	6.9	7.6	8.2	8.1	8.0	7.3	6.1	5.3	4.5	5.3	4.8	5.8		
Lander, Wyo.	4.7	4.5	4.4	3.7	3.5	3.1	2.6	2.7	3.3	4.9	5.3	5.1	5.3	5.7	8.4	8.2	8.8	8.2	7.9	5.7	5.6	5.1	5.4		
Lexington, Ky.	7.3	6.7	7.1	7.7	7.8	7.5	7.3	8.0	8.8	9.8	10.2	10.3	10.2	10.1	9.6	9.5	9.5	8.3	7.1	6.0	6.1	5.3	5.7	7.7	
Little Rock, Ark.	5.1	5.4	4.8	4.3	5.0	4.9	5.4	6.0	7.3	7.3	8.6	8.9	8.9	9.4	8.8	9.1	8.6	8.3	7.4	6.4	5.3	5.7	5.0	4.7	
Los Angeles, Cal.	2.9	3.1	3.1	2.9	2.8	2.6	2.5	2.6	3.1	3.5	3.9	4.6	5.4	7.2	8.7	9.1	8.7	9.1	8.6	7.9	6.8	5.4	4.5	3.5	
Louisville, Ky.	5.4	5.5	5.1	5.3	5.1	5.7	5.3	6.3	7.0	8.0	9.4	10.4	10.6	10.5	10.5	10.4	9.9	9.3	8.6	6.8	6.0	5.3	5.1		
Lynchburg, Va.	2.5	2.1	2.3	2.1	1.6	1.6	2.0	2.5	3.8	4.7	5.1	5.4	6.2	6.2	6.5	6.5	7.2	6.9	5.8	4.4	3.6	2.7	2.7		
Macon, Ga.	4.7	4.4	4.3	3.8	3.5	3.6	3.9	5.1	6.2	6.5	7.0	7.1	7.7	7.7	8.7	8.7	8.6	7.7	7.2	5.0	5.1	4.3	4.1		
Marquette, Mich.	9.0	9.0	8.7	9.4	8.4	8.9	8.8	9.3	9.8	10.7	10.9	11.1	11.4	12.4	11.2	10.9	10.1	8.5	7.6	7.0	7.2	8.1	8.6		
Memphis, Tenn.	8.0	8.0	8.3	7.5	7.5	7.7	7.6	8.4	9.3	9.7	9.8	10.5	10.7	10.6	11.1	11.8	10.9	10.1	8.4	8.0	8.0	8.7	9.1		
Milwaukee, Wis.	9.2	9.7	8.7	9.0	9.5	9.3	9.2	9.4	9.9	10.3	11.0	10.8	11.4	11.7	12.3	12.8	12.8	12.4	11.2	9.8	9.3	8.2	7.3	6.3	
Mobile, Ala.	5.6	5.9	5.7	5.1	5.6	5.4	6.2	7.1	7.5	8.4	8.5	9.3	10.6	11.8	12.6	13.4	12.2	11.1	9.8	5.5	5.8	5.8	6.2	6.4	
Montgomery, Ala.	5.2	5.4	4.6	4.5	4.5	4.0	4.3	5.4	6.6	6.9	7.2	7.9	8.2	8.6	9.3	8.7	8.7	7.7	5.5	5.8	4.3	5.8	6.5	8.8	
Moorhead, Minn.	8.8	8.9	8.7	7.9	8.2	8.0	8.4	8.6	9.1	10.7	10.7	11.3	11.5	12.1	11.7	11.0	10.8	11.0	15.1	11.2	9.5	8.6	8.6	9.8	
Mount Tamalpais, Cal.	27.5	25.5	26.0	25.1	26.7	26.5	25.2	23.7	21.8	18.8	16.6	13.5	11.2	9.4	10.0	12.3	16.4	18.3	23.4	28.6	30.4	25.5	20.5		
Nantucket, Mass.	9.9	10.5	10.1	11.1	11.1	11.2	12.1	13.0	13.5	18.9	13.4	13.9	13.4	13.2	13.1	12.7	12.9	11.8	10.5	10.0	9.9	10.5	10.0	9.8	11.7
Nashville, Tenn.	4.1	3.8	3.5	3.4	3.4	3.5	4.1	5.0	5.9	7.6	8.2	8.9	9.0	9.8	9.9	9.7	9.7	9.5	8.4	6.6	5.5	4.9	4.5	4.2	6.4
Neah Bay, Wash.	5.0	4.9	4.5	4.6	4.3	4.4	4.3	3.8	3.6	3.3	4.1	5.3	6.4	6.4	7.1	8.5	9.2	8.8	9.5	8.8	8.2	7.3	5.6	4.9	5.9
New Haven, Conn.	7.2	6.5	6.5	6.3	6.9	7.0	8.0	9.0	9.8	11.5	12.4	12.6	12.8	11.6	9.2	8.4	8.8	8.4	8.2	7.2	7.1	6.7	6.7	9.1	
New Orleans, La.	6.5	5.4	5.0	5.1	4.7	4.4	5.2	6.1	7.7	9.5	9.7	9.6	10.9	10.5	10.2	9.2	8.9	8.7	8.5	7.4	6.2	6.8	6.6	6.7	7.5

TABLE V.—*Average wind movement, etc.*—Continued.

Stations.	1 a. m.	2 a. m.	3 a. m.	4 a. m.	5 a. m.	6 a. m.	7 a. m.	8 a. m.	9 a. m.	10 a. m.	11 a. m.	Noon.	1 p. m.	2 p. m.	3 p. m.	4 p. m.	5 p. m.	6 p. m.	7 p. m.	8 p. m.	9 p. m.	10 p. m.	11 p. m.	Midnight.	Mean.
New York, N. Y.	12.7	12.1	12.2	12.4	12.2	11.4	11.7	12.5	12.6	12.7	13.4	14.2	14.8	15.8	16.1	15.7	16.6	16.2	15.2	15.2	14.8	14.1	14.2	13.0	13.8
Norfolk, Va.	9.0	8.9	8.9	8.4	8.5	8.6	9.1	10.7	10.9	10.8	11.4	11.7	11.5	11.3	11.4	12.7	12.2	11.9	10.0	9.3	9.6	10.2	10.3	9.6	10.3
Northfield, Vt.	7.3	7.4	7.7	6.6	6.6	6.8	6.5	8.7	10.3	11.5	12.1	13.0	14.1	14.5	13.7	13.7	12.4	11.8	9.2	8.0	8.1	7.9	8.0	7.7	9.7
North Platte, Nebr.	7.0	7.4	6.6	5.7	5.9	5.0	4.6	5.1	6.6	8.4	9.2	10.5	10.9	11.0	10.8	10.6	11.5	11.6	11.8	10.4	8.7	7.6	7.2	6.9	8.4
Oklahoma, Okla.	7.0	7.4	7.8	7.2	7.0	6.7	6.2	7.3	8.8	9.7	10.7	10.3	10.2	10.7	10.4	10.3	10.4	10.0	10.0	8.5	7.2	7.1	7.1	6.6	8.5
Omaha, Nebr.	6.8	6.8	5.9	5.5	5.3	5.5	5.5	6.4	7.5	8.9	9.6	11.0	11.0	10.8	11.2	11.4	10.9	10.7	10.2	9.1	7.7	6.7	6.5	6.2	8.2
Oswego, N. Y.	8.2	8.2	8.6	8.5	9.3	8.8	8.9	9.7	10.3	10.5	10.8	10.3	11.2	11.0	10.8	11.4	10.7	9.7	7.5	6.9	7.1	7.7	8.1	7.7	9.1
Palestine, Tex.	5.7	5.6	6.5	6.2	6.0	5.7	5.6	5.2	6.1	7.2	8.0	8.0	7.7	7.9	7.8	8.5	8.3	8.7	7.5	6.9	4.9	4.8	5.1	5.7	6.5
Parkersburg, W. Va.	2.7	2.9	3.1	3.5	3.4	3.6	3.6	4.1	4.4	5.1	6.4	6.5	7.5	7.1	7.8	7.7	7.7	7.6	7.0	5.5	4.9	4.8	5.1	5.7	6.5
Pensacola, Fla.	7.7	7.7	7.7	7.5	8.0	8.2	8.3	9.4	10.5	10.5	11.2	11.7	12.6	12.9	12.9	12.8	12.5	12.4	11.6	9.7	8.7	8.3	7.9	7.6	9.9
Phenix, Ariz.	3.2	3.3	3.2	3.3	3.2	3.2	3.7	4.0	4.1	4.3	4.7	4.8	4.6	4.6	5.0	5.6	6.3	6.4	6.6	6.1	4.7	4.4	3.7	3.5	4.4
Philadelphia, Pa.	9.1	8.7	8.3	7.9	7.4	7.5	8.0	9.0	9.7	10.2	10.5	11.4	12.0	12.6	13.0	13.0	13.5	12.5	11.4	10.8	10.2	9.5	9.4	8.5	10.2
Pierre, S. Dak.	10.7	9.5	8.8	7.6	7.3	7.5	7.2	7.1	7.9	9.9	11.8	13.4	14.2	14.5	14.6	14.4	14.9	14.4	14.4	13.8	13.3	12.4	12.1	11.8	11.4
Pittsburg, Pa.	3.9	3.5	3.8	3.7	3.7	3.7	4.0	4.6	5.5	6.3	7.0	7.3	7.6	7.7	8.0	8.1	7.8	7.9	6.5	5.5	4.6	4.5	3.8	3.7	5.5
Pocatello, Idaho.	8.8	9.2	9.4	10.1	10.3	9.3	9.2	9.5	9.6	9.3	9.1	8.6	8.7	10.4	10.5	10.4	10.2	11.3	10.8	10.6	9.8	9.1	8.9	8.8	9.7
Point Reyes Lt., Cal.	26.6	25.9	25.7	25.5	25.4	25.3	24.6	23.5	23.2	22.3	22.4	22.3	21.5	22.0	23.0	23.9	23.6	24.6	26.7	30.1	31.0	30.3	29.3	27.7	25.3
Port Crescent, Wash.	4.1	3.5	3.5	3.0	2.7	2.7	2.8	2.9	2.5	2.6	2.9	4.6	6.0	6.4	6.7	6.9	6.8	6.7	6.3	6.3	6.2	6.3	5.4	4.4	4.7
Port Huron, Mich.	9.5	9.6	9.4	9.8	9.4	9.4	10.2	10.2	9.9	10.6	11.1	11.2	12.2	13.3	13.4	12.9	11.5	10.7	9.7	9.4	9.4	9.5	9.2	9.0	10.4
Portland, Me.	6.0	5.5	5.5	5.1	5.2	5.4	5.9	6.6	7.3	8.4	8.9	9.8	10.5	10.7	10.3	10.4	10.1	9.0	6.8	5.4	5.7	5.7	6.4	5.8	7.3
Portland, Oreg.	9.0	8.6	7.9	7.2	6.7	6.0	5.9	6.0	6.0	6.8	7.4	7.8	8.2	7.9	8.6	9.5	8.9	9.7	9.7	9.1	8.4	8.4	7.5	8.6	7.9
Pueblo, Colo.	4.5	4.6	4.3	4.0	4.2	4.1	4.1	3.8	4.2	5.4	6.6	7.5	8.1	8.2	8.3	9.2	8.9	9.8	9.5	9.4	9.0	7.0	5.8	5.3	6.5
Raleigh, N. C.	5.5	5.8	5.0	4.6	4.5	4.8	5.5	6.3	6.9	6.7	6.9	6.6	7.2	7.4	8.1	8.2	7.9	7.3	5.9	4.9	5.3	5.6	5.6	5.6	6.2
Rapid City, S. Dak.	5.5	5.5	5.5	6.5	6.4	5.6	5.5	6.2	7.2	7.8	9.7	10 8	11.4	11.5	11.7	11.4	11.3	10.5	10.8	9.2	7.4	6.0	6.4	6.6	8.2
Red Bluff, Cal.	5.3	5.2	5.1	5.0	4.5	4.4	4.5	4.3	4.0	4.5	6.6	7.4	7.8	7.5	7.5	7.1	7.2	6.8	6.8	6.6	6.6	6.2	6.1	5.7	5.9
Richmond, Va.	5.6	6.0	5.7	5.6	5.0	5.4	5.8	6.6	6.6	7.5	7.8	7.8	7.9	8.3	9.0	9.2	9.0	8.5	7.6	7.1	6.5	5.9	6.3	5.8	6.9
Rochester, N. Y.	6.0	5.8	5.7	5.6	5.3	5.8	6.2	7.3	7.9	8.4	9.4	9.3	10.5	10.2	10.8	10.3	10.6	9.8	7.9	6.7	5.8	5.9	5.7	5.8	7.6
Roseburg, Oreg.	2.4	2.2	1.7	1.4	1.9	1.7	1.8	1.7	1.9	1.8	2.5	2.3	3.9	4.6	5.5	6.0	5.9	6.2	6.5	6.5	6.7	6.3	4.8	3.5	3.8
Sacramento, Cal.	7.6	7.1	7.3	6.8	7.0	6.7	6.6	6.0	5.8	5.3	6.0	7.1	8.2	8.1	8.2	8.1	8.2	8.1	8.4	9.3	9.8	9.6	9.2	8.5	7.6
St. Louis, Mo.	8.1	8.1	7.6	7.2	7.0	6.6	7.0	7.2	7.7	9.2	9.0	9.4	9.7	10.4	9.8	10.4	10.8	10.4	9.5	8.5	8.1	8.0	8.2	7.8	8.6
St. Paul, Minn.	4.8	4.8	5.1	4.5	4.5	4.5	4.9	5.7	6.4	7.5	8.0	8.6	9.2	9.8	10.0	9.9	9.8	9.8	8.6	7.5	6.0	5.5	5.1	4.7	6.9
Salt Lake City, Utah.	4.9	4.8	4.5	4.2	3.7	3.7	3.9	4.4	3.8	3.8	4.7	6.5	8.3	10.3	10.3	10.3	11.1	11.5	10.9	9.9	8.9	6.8	6.3	5.0	6.8
San Antonio, Tex.	5.8	5.3	5.0	4.7	4.2	5.5	4.7	5.3	5.6	6.8	7.5	7.4	8.2	8.4	8.6	9.6	9.8	8.1	8.0	7.4	6.9	7.1	7.0	6.8	6.7
San Diego, Cal.	4.2	4.1	4.1	4.4	4.3	4.0	4.0	4.0	3.7	3.5	4.6	6.1	7.6	8.7	9.6	9.4	9.8	10.2	9.3	8.8	8.3	7.1	5.6	4.5	6.3
Sandusky, Ohio.	8.0	7.7	7.6	7.4	7.6	7.9	7.3	7.7	8.5	9.0	9.2	9.3	9.9	9.7	9.6	8.8	8.5	7.7	6.6	6.1	6.7	7.4	16.1	13.5	12.1
San Francisco, Cal.	11.2	9.2	9.2	8.4	8.0	6.7	5.8	6.2	5.4	5.4	6.5	7.3	8.2	11.0	14.3	17.2	19.7	20.4	21.1	20.8	19.8	18.4			
San Luis Obispo, Cal.	3.1	2.6	3.2	4.1	4.4	4.4	4.3	4.8	5.3	5.4	6.1	6.5	6.7	7.3	8.4	9.1	9.5	9.7	9.0	9.0	8.3	6.2	4.9	4.0	6.1
Santa Fe, N. Mex.	6.6	6.1	5.2	5.2	4.6	4.3	4.0	3.7	4.0	5.5	6.5	7.9	9.1	9.5	9.9	11.2	10.7	10.4	9.7	8.4	7.2	6.1	6.6	7.0	7.1
Sault Ste. Marie, Mich.	4.5	4.2	4.5	4.6	4.6	4.3	4.0	3.7	4.0	5.5	6.5	7.9	9.5	13.9	14.7	14.9	14.7	13.7	11.4	9.3	7.5	6.2	5.7	5.3	8.4
Savannah, Ga.	5.4	5.5	5.7	5.3	5.5	5.4	5.7	7.4	8.1	8.1	8.4	9.3	10.3	10.5	10.4	10.5	9.4	8.0	6.3	7.1	6.1	5.7	5.5	5.5	7.4
Seattle, Wash.	6.4	5.5	5.1	4.9	5.3	5.3	4.7	4.3	4.3	4.7	4.8	5.1	5.8	5.7	6.0	6.4	6.2	6.6	6.6	7.1	7.1	6.9	6.6	6.7	5.8
Shreveport, La.	5.8	5.3	5.2	4.6	4.8	4.8	4.7	5.0	6.4	7.4	7.5	6.9	7.6	7.4	7.7	7.6	7.9	8.2	7.9	6.3	5.1	5.5	5.5	6.1	6.3
Sioux City, Iowa.	10.7	10.3	8.9	9.5	9.4	9.5	10.4	10.2	10.3	11.4	12.9	14.2	14.7	15.5	15.9	15.5	15.4	15.1	14.5	13.5	11.7	12.2	11.1	10.8	12.2
Spokane, Wash.	5.4	4.9	3.8	4.4	4.4	5.5	6.4	6.4	6.5	7.0	7.0	7.6	7.7	8.2	9.0	8.7	9.2	8.7	8.2	7.4	6.1	6.1	5.8	5.5	6.6
Springfield, Ill.	7.4	7.1	7.5	7.1	6.7	6.3	6.4	7.5	7.6	8.6	9.0	10.2	11.4	10.8	10.8	10.3	10.1	9.7	7.8	6.7	6.7	6.8	7.2	7.0	8.2
Springfield, Mo.	7.9	7.9	7.9	8.2	8.7	8.4	8.0	8.3	9.1	10.7	10.9	11.3	11.7	11.1	11.4	11.5	9.9	8.6	7.4	7.2	7.4	7.8	8.5	9.2	
Tacoma, Wash.																									
Tampa, Fla.																									
Toledo, Ohio.	5.5	5.4	5.8	5.6	5.4	5.1	5.5	7.5	8.4	9.0	8.8	8.2	8.7	9.4	9.0	9.5	9.1	9.1	8.3	6.8	5.8	5.7	5.3	5.7	7.2
Valentine, Nebr.	8.0	8.0	7.5	8.1	8.3	8.3	8.5	8.5	9.3	10.0	11.1	11.4	12.6	13.0	12.8	13.1	11.9	10.5	9.4	8.9	8.3	8.0	8.2	8.1	9.7
Vicksburg, Miss.	6.2	5.5	5.1	5.5	5.3	5.3	5.4	5.8	6.2	6.3	6.1	6.6	7.3	7.3	7.2	7.5	7.7	7.1	6.5	5.5	5.2	5.6	5.7	6.2	6.2
Vineyard Haven, Mass.	8.2	8.0	7.9	7.8	8.7	8.9	9.9	10.7	11.6	12.0	12.5	12.5	12.8	12.8	13.5	13.1	12.0	10.5	9.8	9.8	9.6	9.0	8.3	8.4	10.3
Walla Walla, Wash.	5.1	5.1	5.4	5.4	5.3	5.2	4.5	4.6	4.7	5.2	6.0	6.3	6.3	6.5	6.2	6.1	6.2	6.5	5.8	6.0	6.4	5.1	5.5	5.2	5.6
Washington, D. C.	5.1	4.7	4.6	4.6	4.4	4.0	4.5	6.0	7.0	7.4	8.1	7.9	8.5	9.2	9.2	9.5	9.3	7.7	7.5	6.9	6.0	5.8	5.6	5.1	6.6
Wichita, Kans.	6.8	6.6	6.7	6.6	6.2	6.2	6.2	6.7	7.9	8.6	9.2	10.4	11.2	10.7	11.3	11.7	11.2	10.6	10.2	9.4	7.4	7.1	7.5	7.3	8.5
Williston, N. Dak.	9.2	9.2	8.3	7.3	7.1	6.3	7.3	7.5	8.9	10.6	12.9	14.9	16.7	16.2	16.2	15.7	15.3	14.4	14.2	13.0	10.7	10.3	9.4	11.6	
Wilmington, N. C.	6.1	6.3	6.3	6.1	6.3	6.2	6.4	8.2	9.1	9.5	9.9	9.6	10.4	11.5	11.6	12.0	11.8	11.2	8.7	7.2	7.1	6.8	6.5	6.2	8.4
Winnemucca, Nev.	7.0	7.8	7.9	7.9	8.6	8.4	8.3	8.7	7.7	8.4	9.6	10.2	9.5	9.8	10.8	10.8	10.6	10.5	9.5	10.2	8.1	6.9	7.4	8.9	
Woods Hole, Mass.	12.0	12.0	12.4	12.1	12.5	12.5	13.0	13.4	13.1	13.4	14.4	14.9	15.8	16.8	17.3	16.0	13.9	13.3	13.1	13.6	13.1	12.0	11.7	13.7	
Yankton, S. Dak.	7.8	7.5	7.3	6.1	6.2	6.5	5.8	6.7	7.8	5.0	9.6	10.8	12.2	12.1	12.2	11.7	11.8	11.7	11.0	9.5	7.9	7.1	7.3	8.3	8.9
West Indies.																									
Basseterre, St. Kitts.	9.4	9.8	9.5	9.4	9.3	9.9	10.9	11.7	11.8	12.1	12.2	12.5	12.3	11.8	11.6	11.1	10.3	9.7	9.9	10.0	10.4	10.5	9.9	9.8	10.6
Bridgetown, Bar.	7.8	7.8	7.6	7.7	7.2	8.0	11.5	13.2	14.2	14.6	14.7	14.8	14.8	14.3	13.7	13.0	11.7	9.2	7.7	7.7	7.8	8.0	7.8	7.9	10.5
Cienfuegos, Cuba.	6.4	6.3	5.7	5.7	5.9	6.0	5.6	5.9	6.9	7.9	9.2	9.9	10.0	11.3	12.2	11.6	10.4	9.3	7.4	6.9	6.3	6.6	6.5	6.7	7.8
Havana, Cuba.	6.8	6.3	6.3	6.0	5.9	6.1	6.3	8.2	10.9	12.0	12.2	13.5	14.7	15.4	15.9	15.8	15.6	14.7	13.4	12.1	11.1	10.2	9.7	7.9	10.7
Kingston, Jamaica.	4.6	5.0	4.6	4.6	4.8	4.9	4.8	4.5	5.3	7.6	11.0	12.1	13.3	13.8	13.5	12.3	10.5	8.4	5.8	4.1	3.9	3.9	4.3	4.2	7.1
Port of Spain, Trin.	2.0	2.4	2.5	2.4	2.6	2.6	3.5	5.8	8.1	8.8	9.5	9.4	10.1	9.3	9.2	8.7	7.4	5.7	4.4	3.5	2.3	2.3	1.7	2.2	5.3
Puerto Principe, Cuba	3.8	4.0	4.4	4.1	4.4	4.1	5.0	7.0	8.7	9.5	9.7	10.1	10.8	11.2	11.8	10.6	8.8	7.3	6.0	5.3	4.9	4.6	4.6	4.6	7.1
Roseau, Dominica.	4.4	4.2	4.3	4.3	4.6	4.1	3.8	4.2	5.5	6.9	8.0	7.7	7.5	6.9	6.7	5.9	4.8	4.6	4.6	4.6	4.7	4.6	4.3	4.6	5.4
San Juan, Puerto Rico.	7.8	7.5	6.5	5.6	5.9	6.4	7.2	10.0	12.9	15.9	17.4	17.9	19.5	19.4	17.7	17.8	16.8	15.0	12.9	11.3	10.3	9.7	9.2	8.0	12.0
Santiago de Cuba.	2.6	2.6	2.3	2.3	2.4	2.4	2.5	3.6	4.7	5.2	5.4	6.3	7.3	7.3	6.5	5.5	4.8	3.5	2.8	2.5	3.0	3.1	2.9	2.9	3.9
Santo Domingo, S. D.	3.8	3.8	4.0	4.3	4.2	4.3	4.2	4.6	5.2	6.0	6.6	7.5	7.6	8.5	8.6	8.3	7.2	6.1	5.5	5.5	4.4	3.9	3.8	3.9	5.5
Willemstad, Curaçao.	12.5	12.2	12.1	11.8	11.6	11.8	13.6	15.8	16.6	17.1	16.9	17.0	16.7	16.6	16.9	17.2	16.7	15.5	14.7	14.3	14.1	13.3	13.0	12.7	14.6

TABLE VI.—*Resultant winds from observations at 8 a. m. and 8 p. m., daily, during the month of May*, 1900.

Stations.	Component direction from—				Resultant.	
	N.	S.	E.	W.	Direction from—	Duration.
New England.	*Hours.*	*Hours.*	*Hours.*	*Hours.*	°	*Hours.*
Eastport, Me	16	14	14	29	n. 82 w.	15
Portland, Me	21	15	14	25	n. 61 w.	12
Northfield, Vt	26	29	8	11	s. 45 w.	4
Boston, Mass	19	12	17	26	n. 52 w.	11
Nantucket, Mass	16	21	12	29	s. 74 w.	18
Woods Hole, Mass	19	30	12	27	s. 86 w.	15
Block Island, R. I	11	19	15	34	s. 67 w.	21
New Haven, Conn	22	20	13	23	n. 79 w.	10
Middle Atlantic States.						
Albany, N. Y	16	25	7	21	s. 57 w.	17
Binghamton, N. Y.†	14	7	4	15	n. 58 w.	13
New York, N. Y	18	19	15	24	s. 84 w.	9
Harrisburg, Pa.†	9	7	8	14	n. 72 w.	6
Philadelphia, Pa	15	25	14	22	s. 39 w.	13
Atlantic City, N. J	16	23	13	24	s. 58 w.	13
Cape May, N. J.	18	23	14	19	s. 45 w.	7
Baltimore, Md	13	19	18	22	s. 34 w.	7
Washington, D. C	18	23	18	18	s.	5
Lynchburg, Va	17	23	16	20	s. 34 w.	7
Norfolk, Va	14	31	20	12	s. 25 e.	19
Richmond, Va	20	28	11	14	s. 21 w.	8
South Atlantic States.						
Charlotte, N. C	15	32	12	19	s. 22 w.	18
Hatteras, N. C	18	27	15	21	s. 34 w.	11
Kittyhawk, N. C	7	8	12	10	s. 63 e.	2
Raleigh, N. C	20	26	9	28	s. 72 w.	20
Wilmington, N. C	16	22	10	26	s. 69 w.	17
Charleston, S. C	13	29	19	14	s. 17 e.	17
Augusta, Ga	13	31	13	16	s. 9 w.	18
Savannah, Ga	11	25	18	19	s. 4 w.	14
Jacksonville, Fla	7	22	25	10	s. 45 e.	21
Florida Peninsula.						
Jupiter, Fla	12	17	30	13	s. 74 e.	18
Key West, Fla	17	10	37	10	n. 75 e.	28
Tampa, Fla	19	9	27	22	n. 27 e.	11
Eastern Gulf States.						
Atlanta, Ga	12	27	13	25	s. 39 w.	19
Macon, Ga†	8	14	8	9	s. 9 w.	6
Pensacola, Fla.†	12	6	14	8	n. 45 e.	8
Mobile, Ala	22	25	18	8	s. 73 e.	10
Montgomery, Ala	11	26	23	16	s. 25 e.	17
Meridian, Miss.†	9	13	9	10	s. 14 w.	4
Vicksburg, Miss	17	27	24	8	s. 58 e.	19
New Orleans, La	12	27	29	14	s. 45 e.	21
Western Gulf States.						
Shreveport, La	16	26	20	12	s. 39 e.	13
Fort Smith, Ark	14	19	27	10	s. 74 e.	18
Little Rock, Ark	18	24	18	22	s. 34 w.	7
Corpus Christi, Tex	13	30	32	7	s. 56 e.	30
Fort Worth, Tex†	11	10	3	14	n. 85 w.	11
Galveston, Tex	8	30	24	11	s. 30 e.	26
Palestine, Tex	19	33	13	9	s. 16 e.	15
San Antonio, Tex	23	17	36	5	n. 79 e.	32
Ohio Valley and Tennessee.						
Chattanooga, Tenn	14	27	15	22	s. 28 w.	15
Knoxville, Tenn	20	19	11	28	n. 87 w.	7
Memphis, Tenn	16	28	17	14	s. 14 e.	12
Nashville, Tenn	15	24	17	20	s. 18 w.	10
Lexington, Ky †	6	16	11	5	s. 31 e.	12
Louisville, Ky	20	24	12	18	s. 56 w.	7
Evansville, Ind.†	11	13	9	6	s. 56 e.	4
Indianapolis, Ind	19	27	8	23	s. 62 w.	17
Cincinnati, Ohio	18	28	15	21	s. 31 w.	12
Columbus, Ohio	12	25	11	24	s. 45 w.	18
Pittsburg, Pa	23	10	9	32	n. 61 w.	26
Parkersburg, W. Va	14	28	11	20	s. 33 w.	16
Elkins, W. Va	29	19	6	19	n. 52 w.	16
Lower Lake Region.						
Buffalo, N. Y	14	21	14	26	s. 60 w.	14
Oswego, N. Y	13	28	17	20	s. 11 w.	15
Rochester, N. Y	16	21	14	29	s. 72 w.	16
Erie, Pa	17	19	10	27	n. 83 w.	17
Cleveland, Ohio	19	24	17	17	s.	5
Sandusky, Ohio	15	20	22	22	s.	5
Toledo, Ohio	16	17	17	26	s. 84 w.	9
Detroit, Mich	20	18	19	23	n. 63 w.	4
Upper Lake Region.						
Alpena, Mich	24	19	20	17	n. 31 e.	6
Escanaba, Mich	28	20	12	15	n 21 w.	8
Grand Haven, Mich	18	18	16	23	w.	7
Marquette, Mich	26	16	11	26	n. 56 w.	18
Port Huron, Mich	25	21	13	14	n. 14 w.	4
Sault Ste. Marie, Mich	12	13	23	27	s. 76 w.	4
Chicago, Ill	24	21	22	16	n. 63 e.	7
Milwaukee, Wis.	23	14	22	17	n. 29 e.	10
Green Bay, Wis	25	18	18	8	n. 55 e.	12
Duluth, Minn	32	12	24	15	n. 24 e.	22
North Dakota.						
Moorhead, Minn	17	25	26	14	s. 56 e.	14
Bismarck, N. Dak	14	18	29	12	s. 77 e.	18
Williston, N. Dak	19	23	17	15	s. 27 e.	4

Stations.	Component direction from—				Resultant.	
	N.	S.	E.	W.	Direction from—	Duration.
Upper Mississippi Valley.	*Hours.*	*Hours.*	*Hours.*	*Hours.*	°	*Hours.*
St. Paul, Minn	18	20	21	18	s. 56 e.	4
La Crosse, Wis. †	11	14	4	6	s. 34 w.	4
Davenport, Iowa	18	16	22	22	n.	2
Des Moines, Iowa	18	17	23	18	n. 79 e.	5
Dubuque, Iowa	21	22	16	16	s.	1
Keokuk, Iowa	17	24	18	18	s.	7
Cairo, Ill	23	28	13	11	s. 22 e.	5
Springfield, Ill	16	26	13	20	s. 35 w.	12
Hannibal, Mo †	9	11	9	10	s. 27 w.	2
St. Louis, Mo	19	26	12	12	s.	7
Missouri Valley.						
Columbia, Mo.*	10	12	7	8	s. 27 w.	2
Kansas City, Mo	20	27	17	13	s. 30 e.	8
Springfield, Mo	13	30	19	13	s. 19 e.	18
Lincoln, Nebr	16	32	18	7	s. 34 e.	19
Omaha, Nebr	18	21	27	13	s. 78 e.	14
Valentine, Nebr	22	24	13	24	s. 80 w.	11
Sioux City, Iowa†	11	13	12	4	s. 76 e.	8
Pierre, S. Dak	13	25	25	15	s. 40 e.	16
Huron, S. Dak	17	22	28	11	s. 74 e.	18
Yankton, S. Dak †	9	8	10	11	n. 45 w.	1
Northern Slope.						
Havre, Mont	14	18	11	36	s. 81 w.	25
Miles City, Mont	17	21	9	23	s. 74 w.	15
Helena, Mont	8	31	6	36	s. 53 w.	38
Kalispell, Mont	15	19	15	30	s. 75 w.	16
Rapid City, S. Dak	14	17	21	25	s. 53 w.	5
Cheyenne, Wyo	20	21	10	25	s. 86 w.	15
Lander, Wyo	16	25	15	26	s. 51 w.	14
North Platte, Nebr	18	28	17	15	s. 11 e.	10
Middle Slope.						
Denver, Colo	13	31	13	18	s. 16 w.	19
Pueblo, Colo	21	19	20	21	n. 27 w.	2
Concordia, Kans	17	27	21	9	s. 50 e.	16
Dodge, Kans	26	24	18	8	n. 79 e.	10
Wichita, Kans	21	28	16	8	s. 49 e.	11
Oklahoma, Okla	17	32	13	8	s. 18 e.	16
Southern Slope.						
Abilene, Tex	20	24	24	10	s. 74 e.	15
Amarillo, Tex	14	29	18	14	s. 15 e.	16
Southern Plateau.						
El Paso, Tex	17	7	25	26	n. 6 w.	10
Santa Fe, N. Mex	12	29	24	12	s. 35 e.	21
Flagstaff, Ariz	18	22	4	34	s. 82 w.	30
Phenix, Ariz	21	7	15	35	n. 55 w.	24
Yuma, Ariz	16	19	11	33	s. 82 w.	22
Independence, Cal	23	20	14	25	n. 75 w.	11
Middle Plateau.						
Carson City, Nev	18	15	6	37	n. 84 w.	31
Winnemucca, Nev	17	18	15	23	s. 83 w.	8
Cedar City, Utah	12	32	18	16	s. 6 e.	20
Salt Lake City, Utah	25	17	23	13	n. 51 e.	13
Grand Junction, Colo	19	17	24	19	n. 68 e.	5
Northern Plateau.						
Baker City, Oreg	20	28	15	13	s. 14 e.	8
Boise, Idaho	18	19	16	25	s. 84 w.	9
Pocatello, Idaho	6	33	12	24	s. 24 w.	30
Spokane, Wash	8	33	15	18	s. 7 w.	25
Walla Walla, Wash	11	33	15	13	s. 5 e.	22
North Pacific Coast Region.						
Neah Bay, Wash	8	15	16	30	s. 63 w.	16
Port Crescent, Wash*	2	6	6	22	s. 76 w.	16
Seattle, Wash	11	24	19	18	s. 4 e.	13
Tacoma, Wash	18	24	5	30	s. 77 w.	26
Astoria, Oreg	14	28	6	30	s 60 w.	28
Portland, Oreg	18	23	13	23	s. 63 w.	11
Roseburg, Oreg	31	13	15	18	n. 9 w.	18
Middle Pacific Coast Region.						
Eureka, Cal	30	12	7	24	n. 43 w.	25
Mount Tamalpais, Cal	18	8	4	45	n. 76 w.	42
Red Bluff, Cal	30	19	18	7	n. 45 e.	16
Sacramento, Cal	9	40	17	16	s. 2 e.	31
San Francisco, Cal	4	11	3	52	s. 82 w.	50
South Pacific Coast Region.						
Fresno, Cal	35	6	6	37	n. 47 w.	42
Los Angeles, Cal	6	22	15	33	s. 48 w.	24
San Diego, Cal	23	17	7	30	n. 75 w.	24
San Luis Obispo, Cal	23	10	1	29	n. 65 w.	31
West Indies.						
Basseterre, St. Kitts Island						
Bridgetown, Barbados	1	4	61	0	s. 87 e.	60
Cienfuegos, Cuba	28	14	34	4	n. 65 e.	33
Havana, Cuba	13	10	46	4	n. 86 e.	42
Kingston, Jamaica	31	11	30	5	n. 51 e.	32
Port of Spain, Trinidad	3	6	54	3	s. 87 e.	51
Puerto Principe, Cuba	16	21	33	5	s. 80 e.	28
Roseau, Dominica, W. I						
San Juan, Puerto Rico	1	19	53	0	s. 72 e.	57
Santiago de Cuba, Cuba	20	27	16	14	s. 16 e.	7
Santo Domingo, S. Domingo, W. I.	28	15	30	1	n. 66 e.	32
Willemstad, Curaçao	3	4	60	0	s. 88 e.	80

* From observations at 8 p. m. only.

† From observations at 8 a. m. only.

TABLE VII.—*Thunderstorms and auroras, May, 1900.*

States.	No. of stations.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total. No.	Total. Days.	
Alabama	52	T.	1	2	2	....	....	....	....	8	2	...	....	....	....	....	....	....	4	3	2	3	....	2	7	1	....	....	....	2	2	3	....	89	15	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Arizona	56	T.	....	....	....	....	8	1	....	....	..	7	...	.	....	1	....	....	....	....	1	9	...	....	....	....	....	....	2	....	....	....	1	30	8	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Arkansas	57	T.	1	8	2	...	6	4	11	18	3	...	....	....	....	....	1	8	3	1	1	....	....	....	1	1	....	3	5	11	11	8	7	114	21	T.
		A.	..	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
California	167	T.	....	5	1	7	....	....	....	....	1	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	..	....	....	....	....	....	1	16	6	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Colorado	81	T.	4	4	....	2	3	17	4	....	8	3	6	....	....	3	3	....	4	5	3	7	6	1	5	11	4	2	7	10	6	5	....	133	27	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Connecticut	21	T.	....	....	8	1	....	....	....	9	6	....	1	....	1	....	8	..	2	7	2	4	7	....	....	....	....	....	....	....	....	....	....	56	12	T.
		A.	....	....	....	....	....	....	....	....	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Delaware	5	T.	....	....	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	1	....	....	....	....	....	....	....	....	....	....	1	5	4	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Dist. of Columbia	4	T.	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	1	3	3	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Florida	47	T.	14	2	2	....	....	....	....	....	6	....	....	....	....	....	....	....	2	4	1	2	8	7	7	11	8	2	....	....	1	....	....	77	15	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Georgia	55	T.	5	4	2	....	....	....	....	....	2	..	....	....	....	....	....	....	1	1	2	1	....	....	4	1	3	....	....	1	2	....	....	29	13	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Idaho	34	T.	7	4	1	6	7	1	....	2	...	4	4	3	1	....	3	3	...	1	5	1	....	....	1	....	....	....	....	1	....	....	....	55	18	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Illinois	92	T.	....	16	....	3	6	23	40	28	1	....	....	....	....	11	7	6	17	10	4	1	2	....	....	....	..	4	20	30	25	29	14	297	21	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Indiana	58	T.	....	5	....	....	....	8	13	....	2	....	....	....	....	....	....	....	8	6	2	....	....	....	7	5	4	....	....	....	....	10	4	69	12	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Indian Territory	11	T.	1	4	1	....	3	4	3	2	....	....	....	....	....	1	1	2	....	1	....	....	....	....	....	....	1	7	4	6	1	2	1	45	18	T.
		A.	...	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Iowa	149	T.	....	....	....	....	7	25	23	4	....	....	5	1	6	28	5	1	1	....	....	....	....	1	3	1	4	6	4	12	11	14	11	173	21	T.
		A.	....	....	....	1	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	2	A.
Kansas	77	T.	1	3	3	8	3	15	17	1	....	....	....	....	1	10	10	6	4	4	2	....	....	3	6	1	11	19	9	5	3	10	3	158	25	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Kentucky	41	T.	....	3	1	2	1	8	1	8	1	....	....	....	....	....	....	....	2	3	....	....	....	....	....	1	1	....	2	11	11	10	3	69	17	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Louisiana	46	T.	....	1	2	....	..	1	1	9	3	....	....	....	....	....	1	6	9	1	....	5	4	6	3	1	....	....	1	6	12	15	11	98	20	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Maine	19	T.	....	....	....	2	1	....	..	....	....	....	....	....	....	6	6	....	....	1	....	....	....	....	....	....	....	....	1	....	....	....	....	17	6	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Maryland	48	T.	1	....	24	....	....	....	1	9	3	....	....	....	....	....	....	1	....	5	6	1	....	....	....	....	....	....	....	3	....	1	7	62	12	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Massachusetts	48	T.	...	....	10	1	1	....	....	10	2	....	....	....	....	....	21	....	1	12	....	1	13	1	....	....	....	....	1	1	....	....	....	75	13	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Michigan	106	T.	....	2	....	....	....	..	16	16	....	1	10	17	3	10	6	5	1	....	....	....	....	2	1	1	....	4	4	13	8	7	8	135	22	T.
		A.	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	2	2	A.
Minnesota	67	T.	....	....	....	....	....	....	4	....	....	2	3	1	9	5	1	....	....	....	....	....	....	....	4	....	8	1	8	6	2	....	4	58	14	T.
		A.	....	....	....	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	3	2	A.
Mississippi	44	T.	2	1	2	1	1	....	1	9	....	....	....	....	....	....	...	5	8	4	4	....	....	3	2	....	....	....	3	4	7	5	8	65	18	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Missouri	95	T.	....	22	1	11	15	23	30	7	....	1	....	....	....	6	10	19	21	7	4	1	....	1	2	....	....	8	13	23	18	19	8	270	24	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Montana	40	T.	1	....	1	2	7	2	....	1	6	5	8	7	....	....	....	1	1	1	6	1	3	2	....	8	....	1	3	6	2	3	2	80	23	T.
		A.	3	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	4	2	A.
Nebraska	142	T.	1	1	....	2	20	20	13	....	....	1	2	1	2	18	1	1	4	6	2	....	2	1	16	3	9	5	1	....	9	20	24	185	26	T.
		A.	...	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Nevada	40	T.	....	....	....	....	2	1	....	....	1	1	2	....	....	....	2	....	..	....	2	....	....	....	1	....	....	....	....	....	....	....	1	13	9	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
New Hampshire	19	T.	....	....	1	....	....	....	....	3	2	....	....	....	....	7	8	....	2	5	....	....	3	....	....	....	....	....	....	....	....	....	....	31	8	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
New Jersey	51	T.	....	....	18	....	....	....	....	14	4	....	....	1	2	1	9	3	6	18	1	4	6	....	....	....	....	....	....	....	....	....	12	99	14	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
New Mexico	31	T.	....	1	....	....	1	2	...	....	4	3	1	...	....	1	....	....	1	....	3	2	3	1	....	2	2	1	2	6	3	1	2	42	20	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
New York	99	T.	....	....	4	...	....	....	2	29	4	....	2	4	10	2	....	....	23	10	1	7	...	....	....	10	4	....	4	9	...	4	1	130	18	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
North Carolina	56	T.	....	5	16	1	3	3	...	2	18	....	....	....	....	....	....	....	7	14	2	1	....	1	....	3	....	....	....	....	....	....	....	76	13	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
North Dakota	48	T.	....	..	....	....	....	....	3	....	....	....	....	....	2	....	....	....	1	....	....	....	1	2	1	1	....	....	1	....	5	....	5	22	10	T.
		A.	1	....	...	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	3	3	A.
Ohio	128	T.	....	....	....	....	....	....	6	41	..	....	3	16	....	....	....	....	7	17	2	....	....	...	....	....	7	1	29	11	13	23	6	182	14	T.
		A.	...	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Oklahoma	23	T.	4	4	....	....	1	4	....	....	..	....	....	....	....	5	....	....	....	1	....	....	....	1	2	3	1	6	6	6	....	....	....	44	13	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Oregon	74	T.	....	6	4	2	1	....	2	2	7	7	....	....	....	....	4	1	....	....	....	....	....	....	....	....	....	2	1	....	....	....	....	39	12	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Pennsylvania	91	T.	....	....	12	1	....	....	....	26	6	....	2	5	4	....	2	4	2	8	7	8	....	...	....	5	3	....	1	8	1	3	5	113	20	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Rhode Island	7	T.	....	...	1	....	....	1	....	1	1	....	....	....	....	....	2	..	...	1	....	....	2	....	....	....	....	....	....	....	....	....	....	9	7	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
South Carolina	46	T.	5	6	5	1	....	....	....	2	10	....	....	....	....	....	....	....	5	13	1	1	....	....	2	5	2	....	....	....	....	....	....	58	13	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
South Dakota	56	T.	...	....	....	1	2	6	4	....	....	....	3	3	1	1	....	....	1	1	....	....	....	1	8	....	3	1	....	1	13	3	18	66	18	T.
		A.	....	....	....	1	1	....	....	....	....	....	....	....	....	1	....	1	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	5	5	A.
Tennessee	56	T.	....	5	7	...	1	2	....	10	1	....	....	....	....	....	....	....	5	7	2	..	....	....	3	1	4	....	1	7	7	4	4	71	17	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Texas	95	T.	2	8	7	....	....	1	15	10	..	....	1	....	1	11	13	4	1	3	6	5	7	6	2	1	2	4	7	2	5	8	5	137	26	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Utah	47	T.	4	3	....	....	4	1	....	....	....	4	4	....	..	....	....	....	....	1	2	....	1	3	2	1	....	....	....	....	....	....	....	30	12	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Vermont	16	T.	....	..	5	....	....	....	1	....	....	....	....	1	3	7	7	1	6	2	....	....	1	....	....	....	....	....	....	1	....	2	....	37	12	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Virginia	50	T.	....	2	4	2	....	....	....	8	3	1	1	..	....	....	....	....	...	15	4	....	....	....	1	....	....	....	....	3	....	1	1	4	13	T.
		A.	...	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Washington	64	T.	....	1	6	5	3	....	4	1	1	8	....	1	....	1	4	2	....	....	1	....	7	....	7	....	1	1	1	....	....	3	....	58	20	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
West Virginia	43	T.	....	2	1	....	....	....	....	7	....	....	....	....	....	....	....	....	....	4	1	....	....	....	....	....	....	....	....	5	3	2	2	27	9	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Wisconsin	60	T.	....	....	....	....	....	....	10	8	....	8	6	6	2	7	2	2	....	....	1	....	....	1	....	....	1	11	10	3	3	1	....	82	17	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Wyoming	31	T.	1	....	....	1	4	2	....	....	....	....	....	....	....	1	....	3	1	1	2	1	2	4	..	3	....	....	1	2	....	1	....	30	10	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Sums	2,893	T.	55	130	157	62	111	170	225	300	108	57	64	67	48	143	137	84	161	204	87	67	78	50	98	81	83	89	152	215	184	217	171	3,855	...	T.
		A	5	1	0	5	2	0	0	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	1	0	0	0	1	1	0	19	...	A.

TABLE VIII.—*Average hourly sunshine (in percentages), May, 1900.*

Stations.	Instrument.	Percentages for each hour of local mean time ending with the respective hour.																Hours of sunshine.			
		A. M.								P. M.								Total.			
		5	6	7	8	9	10	11	Noon	1	2	3	4	5	6	7	8	Actual.	Possible.	Percent of possible.	Personal estimate.
																		Hours.	*Hours*		
Albany, N. Y	T.	19	29	54	71	80	89	88	91	93	91	88	87	76	67	42	25	328.9	454.9	72	49
Atlanta, Ga	T.	50	62	71	75	82	89	94	91	91	87	86	82	81	71	39	12	340.8	432.6	79	58
Atlantic City, N. J	T.	39	45	46	55	76	77	83	86	85	83	71	65	51	53	45	31	288.9	443.8	65	53
Baltimore, Md	T.	33	48	49	56	57	74	79	78	76	71	68	54	39	30	23	22	251.9	443.8	57	42
Binghamton, N. Y	T.	17	19	31	55	70	82	87	87	77	71	72	62	56	45	19	14	261.5	451.9	58	46
Bismarck, N. Dak	P.	58	62	65	73	75	74	78	77	64	68	86	84	82	73	55	44	337.9	467.4	72	63
Boise, Idaho	P.	47	45	52	65	72	75	81	85	71	71	71	72	59	58	50	53	298.9	457.9	65	48
Boston, Mass	T.	34	36	39	42	59	62	65	68	68	64	62	54	47	41	27	18	232.2	451.9	51	36
Buffalo, N. Y	T.	16	31	52	66	81	85	92	96	94	91	87	85	85	58	31	15	323.4	454.9	71	36
Cedar City, Utah	T.	76	61	66	80	89	94	95	93	91	93	95	89	78	69	62	86	364.7	441.7	83	62
Charleston, S. C	T.	33	51	53	62	55	63	74	79	78	75	72	65	60	55	54	40	279.1	430.7	65	63
Chattanooga, Tenn	T.	59	58	48	62	78	78	87	86	87	83	80	77	70	61	53	25	313.6	434.2	72	56
Cheyenne, Wyo	P.	63	57	68	80	80	81	77	67	74	77	78	65	58	60	43	36	307.6	449.1	68	56
Chicago, Ill	T.	41	45	47	59	64	68	72	74	73	70	67	57	45	28	29	26	254.0	451.9	56	50
Cincinnati, Ohio	T.	52	52	56	62	74	81	82	85	89	91	87	82	78	65	43	25	322.9	443.8	73	49
Cleveland, Ohio	T.	24	33	39	50	60	64	65	70	72	77	75	59	47	25	13	12	235.7	451.9	52	49
Columbia, Mo	T.	61	56	61	66	72	76	85	85	88	79	81	78	72	63	49	39	319.2	443.8	72	42
Columbus, Ohio	T.	30	35	37	50	65	71	78	87	80	85	74	65	53	39	32	25	267.6	446.7	60	52
Denver, Colo	P.	60	62	74	78	84	85	85	79	79	82	82	64	60	50	45	40	318.8	446.7	71	59
Des Moines, Iowa	T.	32	37	53	55	63	72	77	81	86	80	74	70	57	34	33	17	274.6	451.9	61	48
Detroit, Mich	T.	21	19	29	54	56	65	75	85	81	78	69	62	58	35	19	14	246.5	451.9	55	38
Dodge, Kans	P.	34	49	67	70	78	73	75	66	59	63	56	60	61	60	38	21	273.7	441.7	62	51
Dubuque, Iowa	T.	47	48	52	55	67	73	74	78	80	79	74	59	58	53	55	58	290.1	451.9	64	55
Eastport, Me	F.	36	37	48	58	64	63	64	60	56	57	55	52	51	38	22	20	232.7	460.7	51	42
Elkins, W. Va	T.	17	26	50	74	80	84	87	87	87	86	81	81	69	53	38	33	307.1	443.8	69	47
Erie, Pa	T.	26	28	28	52	65	67	74	75	75	78	73	68	57	29	17	12	247.2	451.9	55	47
Escanaba, Mich	T.	16	16	16	25	37	47	45	50	46	45	48	40	55	11	11	8	145.8	464.1	31	32
Eureka, Cal	P.	28	24	30	50	48	59	15	64	58	60	61	56	51	45	33	48	223.6	449.1	50	46
Fresno, Cal	T.	78	58	61	75	80	86	91	89	92	86	78	79	79	67	59	70	237.9	439.0	77	76
Galveston, Tex	P.	.....	31	45	61	70	72	74	65	71	76	75	74	72	67	41	.....	272.5	421.8	65	49
Grand Junction, Colo	P.	88	76	77	79	88	89	90	89	87	86	78	74	71	66	68	83	355.7	443.8	80	65
Harrisburg, Pa	T.	35	48	59	72	78	83	84	91	88	83	86	84	73	62	29	17	319.5	446.7	72	47
Helena, Mont	P.	21	39	61	70	65	60	61	51	55	57	56	58	55	45	36	34	247.5	467.4	53	32
Huron, S. Dak	T.	72	68	69	73	78	87	88	93	91	91	88	88	84	70	71	70	370.1	457.9	81	67
Indianapolis, Ind	T.	56	61	59	68	69	71	79	78	77	75	70	65	55	42	45	35	289.7	446.7	65	43
Jacksonville, Fla	T.	0	44	45	58	69	75	81	81	77	84	75	67	49	47	51	.....	275.1	423.7	65	53
Jupiter, Fla	T.	.....	34	44	54	59	67	66	70	74	70	63	51	45	28	23	.....	227.5	418.0	54	38
Kalispell, Mont	T.	24	27	48	54	67	65	60	72	66	66	67	60	40	35	10	65	236.4	471.3	50	52
Kansas City, Mo	P.	48	47	50	49	56	65	65	60	60	62	58	57	64	54	47	36	250.5	443.8	56	51
Knoxville, Tenn	T.	50	55	56	66	73	81	84	79	86	86	84	77	65	57	48	29	310.7	436.7	71	69
Lexington, Ky	T.	19	28	58	69	76	79	85	88	92	85	75	74	65	59	22	0	297.6	441.7	67	58
Little Rock, Ark	T.	37	45	51	61	66	77	79	89	85	83	82	66	64	51	39	50	291.1	434.2	67	60
Los Angeles, Cal	P.	32	39	45	48	67	82	79	78	80	82	84	82	80	79	78	100	307.8	432.6	71	64
Louisville, Ky	T.	38	45	45	47	55	65	74	70	72	70	65	58	43	32	33	21	242.3	441.7	55	51
Macon, Ga	T.	40	61	75	81	89	97	99	97	94	93	94	98	87	72	58	10	368.1	430.7	85	70
Meridian, Miss	T.	32	47	49	57	77	86	87	88	83	74	73	70	60	46	45	0	289.1	428.4	67	59
Mount Tamalpais, Cal	P.	88	68	67	71	70	73	71	69	72	75	77	81	80	72	70	96	322.2	441.7	73	67
Nashville, Tenn	T.	50	52	53	63	75	76	78	88	94	85	84	83	63	52	38	29	307.7	436.7	70	51
New Haven, Conn	T.	44	46	57	67	68	77	75	82	86	77	70	70	65	45	22	31	287.3	449.1	64	63
New Orleans, La	T.	60	57	55	65	76	75	64	61	55	61	62	60	59	37	31	.....	249.7	423.7	59	56
New York, N. Y	T.	46	52	61	65	70	77	78	78	73	73	70	65	66	71	57	36	26	289.8	449.1	65	52
Norfolk, Va	T.	43	39	39	53	74	83	83	85	81	79	70	66	64	57	55	55	289.9	439.0	66	60
Northfield, Vt	P.	38	36	39	44	48	51	56	60	66	62	57	52	46	39	30	31	220.5	457.9	48	33
Oklahoma, Okla	T.	37	42	45	61	70	71	74	80	78	77	77	73	61	51	33	25	277.4	434.2	64	42
Omaha, Nebr	T.	29	30	51	67	78	86	88	87	89	77	71	70	57	33	27	28	287.1	449.1	64	50
Parkersburg, W. Va	T.	35	35	40	54	63	68	74	70	75	78	73	59	43	26	13	8	241.7	443.8	54	52
Phenix, Ariz	P.	73	77	92	97	97	97	96	96	98	99	95	97	95	86	82	100	399.9	430.7	93	82
Philadelphia, Pa	T.	54	58	59	63	69	69	71	70	77	78	67	62	61	62	54	35	291.3	446.7	65	51
Pittsburg, Pa	T.	31	35	35	43	56	65	66	69	73	66	68	56	52	31	26	21	234.0	449.1	52	54
Pocatello, Idaho	T.	49	45	58	65	73	80	86	89	86	84	81	73	71	66	58	69	326.9	454.9	72	66
Portland, Me	T.	1	12	39	59	64	62	70	70	66	62	67	58	55	40	26	15	234.7	457.9	51	44
Portland, Oreg	T.	5	8	6	15	25	35	45	47	53	61	54	40	44	22	9	11	148.4	464.1	32	33
Pueblo, Colo	T.	66	59	71	88	93	96	97	96	94	92	90	82	64	43	30	54	344.4	441.7	78	61
Raleigh, N. C	T.	64	61	60	68	75	85	91	92	93	99	88	79	71	59	52	57	335.1	436.7	77	66
Rochester, N. Y	T.	43	42	45	55	62	70	74	76	78	74	71	70	54	35	9	10	257.7	454.9	57	55
St. Louis, Mo	T.	36	46	52	68	84	88	84	85	88	85	84	80	80	64	40	19	321.7	443.8	72	50
St. Paul, Minn	P.	55	60	68	87	81	79	78	72	78	76	76	75	70	64	47	33	325.1	460.7	71	59
Salt Lake City, Utah	T.	69	68	66	76	83	87	87	92	90	93	89	85	75	67	64	69	356.5	449.1	79	77
San Diego, Cal	P.	7	27	28	41	42	62	74	82	80	84	92	87	76	71	68	100	280.7	430.7	65	67
San Francisco, Cal	T.	84	65	66	69	80	83	92	94	97	98	93	89	80	67	62	79	358.1	441.7	81	67
Santa Fe, N. Mex	P.	78	81	84	82	88	87	89	84	91	83	81	69	64	56	43	28	337.6	436.7	77	62
Sault Ste. Marie, Mich	T.	30	23	32	52	65	76	89	92	90	88	83	79	70	62	35	23	296.6	464.1	64	60
Savannah, Ga	T.	75	74	74	70	63	77	86	83	85	83	75	60	55	53	53	100	303.9	428.4	71	63
Seattle, Wash	T.	9	7	15	30	41	58	64	72	76	80	73	60	56	37	14	5	214.4	471.3	45	34
Spokane, Wash	T.	21	23	38	63	74	75	81	74	71	78	62	57	45	36	26	20	256.1	471.3	54	27
Tacoma, Wash																					30
Tampa, Fla	T.	.....	37	39	40	40	55	57	69	74	69	64	57	45	35	34	.....	216.8	419.8	52	39
Toledo, Ohio	T.	35	43	57	72	80	84	86	91	96	97	92	87	78	62	45	26	337.4	451.9	75	55
Topeka, Kans	T.	39	39	42	52	66	69	67	62	65	65	56	62	49	36	31	28	239.6	443.8	54	47
Vicksburg, Miss	T.	38	59	62	63	74	79	83	88	88	87	84	81	71	57	53	.....	315.9	428.4	74	55
Washington, D. C	P.	30	42	45	55	55	62	72	68	65	66	65	67	65	48	46	31	238.0	443.8	58	56
Wilmington, N. C	T.	55	53	56	80	81	88	93	95	95	90	85	80	70	60	57	75	334.5	432.6	77	69
Yankton, S. Dak	T.	39	47	66	82	88	95	94	91	93	95	89	80	71	64	46	31	348.2	454.9	77	54
Basseterre, St. Kitts	T.	.....	38	42	68	77	81	85	79	84	90	89	85	61	35	24	.....	280.7	401.0	70	48
Bridgetown, Barbados	T.	....	18	58	64	80	86	83	86	86	81	78	66	50	47	20	.....	272.9	394.8	69	36
Cienfuegos, Cuba	T.	.....	28	29	38	44	61	71	72	64	72	63	47	32	15	14	.....	196.7	409.4	48	44
Havana, Cuba	T.	.....	28	30	43	42	55	69	70	68	65	51	37	30	17	11	.....	186.3	411.3	45	42
Kingston, Jamaica, W. I	T.	.....	31	35	66	68	80	86	81	78	71	64	66	50	23	20	.....	245.7	402.7	61	41
Port of Spain, Trinidad, W. I	T.	.....	50	47	51	61	72	73	78	74	69	65	55	40	34	39	.....	232.1	392.0	59	43
Puerto Principe, Cuba	T.	.....	15	16	25	39	55	63	64	61	56	37	23	10	0	0	.....	142.7	407.5	35	29
Roseau, Dominica, W. I	T.	....	3	4	36	59	76	89	87	88	86	79	68	52	37	32	.....	240.1	397.7	60	38
San Juan, Puerto Rico	T	.....	18	56	75	86	86	92	89	83	82	77	75	76	59	18	.....	295.4	402.7	73	64
Santiago de Cuba, Cuba*	T.	.....	61	63	56	50	56	54	61	70	62	36	29	13	7	0	.....	167.0	367.6	45	35
Santo Domingo, Santo Domingo	T.	.....	62	63	65	64	63	69	70	74	70	65	42	33	31	36	.....	237.0	402.7	59	56
Willemstad, Curaçao	T.	.....	6	6	12	34	59	75	75	74	79	78	76	49	35	35	.....	206.1	393.6	52	52

*All values for 28 days

TABLE IX.—*Accumulated amounts of precipitation for each 5 minutes, for storms in which the rate of fall equaled or exceeded 0.25 in any 5 minutes, or 0.75 in 1 hour during May, 1900, at all stations furnished with self-registering gages.*

Stations.	Date.	Total duration.		Total amt. of precipitation.	Excessive rate.		Amount before excessive began.	Depths of precipitation (in inches) during periods of time indicated.													
		From—	To—		Began—	Ended—		5 min.	10 min.	15 min.	20 min.	25 min.	30 min.	35 min.	40 min.	45 min.	50 min.	60 min.	80 min.	100 min.	120 min.
	1	2	3	4	5	6	7														
Albany, N. Y.	19			0.79														0.10			
Atlanta, Ga.	18			0.68														0.66			
Atlantic City, N. J.	19			0.77														0.38			
Baltimore, Md.	19			0.52														0.17			
Binghamton, N. Y.	8-9			0.16														0.11			
Bismarck, N. Dak.	31			0.70														0.42			
Boise, Idaho	12			1.22														0.23			
Boston, Mass.	3-4			2.45														0.54			
Buffalo, N. Y.	8-9			0.39														0.19			
Cairo, Ill.	28	3.40 a. m.	7.00 a. m.	0.80	6.14 a. m.	6.39 a. m.	0.26	0.13	0.28	0.43	0.45	0.47									
Charleston, S. C.	18			0.51														0.21			
Chicago, Ill.	7-8			1.25														0.33			
Cincinnati, Ohio	8-9	8.44 p. m.	8.30 a. m.	1.67	8.45 p. m.	9.00 p. m.	T.	0.22	0.48	0.56	0.59	0.65	0.66	0.67	0.68	0.72	0.80	0.85			
Cleveland, Ohio	30			0.41						0.41											
Columbia, Mo.	28			0.36														0.35			
Columbus, Ohio	8-9			0.74														0.45			
Denver, Colo.	17-18			0.20														0.08			
Des Moines, Iowa	28	3.50 p. m.	6.35 p. m.	1.40	4.00 p. m.	4.40 p. m.	T.	0.03	0.04	0.05	0.40	0.80	1.16	1.25							
Detroit, Mich.	31			0.93														0.47			
Dodge, Kans.	25	6.35 p. m.	9.10 p. m.	0.94	6.54 p. m.	7.08 p. m.	0.03	0.40	0.75	0.80											
Duluth, Minn.	13			0.38														*			
Eastport, Me.	3			1.23														0.26			
Elkins, W. Va.	9			0.83														0.37			
Erie, Pa.	28-29			0.34														0.11			
Escanaba, Mich.	16			0.69														0.16			
Evansville, Ind	8	8.45 p. m.	9.45 p. m.	1.36	8.48 p. m.	9.13 p. m.	0.01	0.33	0.72	0.90	1.05	1.26	1.28								
Do	30	D. N.	D. N.	1.52	3.55 a. m.	4.40 a. m.	T.	0.13	0.52	0.64	0.83	0.97	1.12	1.28	1.37	1.47	1.50	1.52			
Fort Worth, Tex.	26			2.96														1.75†			
Fresno, Cal.	10-11			1.80														0.28			
Galveston, Tex.	8	8.17 a. m.	10.10 a. m.	1.17	8.41 a. m.	9.15 a. m.	0.01	0.23	0.43	0.59	0.70	0.84	0.89	0.94	0.95	0.97	0.99	1.11	1.16		
Do	22	D. N.	10.20 a. m.	2.37	5.54 a. m.	7.10 a. m.	0.05	0.03	0.10	0.26	0.44	0.61	0.62	0.66	0.90	1.07	1.19	1.36	1.89	1.99	2.06
Grand Junction, Colo.	6			0.02														0.01			
Harrisburg, Pa	19			0.77														0.25			
Hatteras, N. C.	19	5.30 p. m.	7.25 p. m.	1.36	5.38 p. m. 6.34 p. m.	5.52 p. m. 6.47 p. m.	0.01 0.62	0.44 0.39	0.54 0.65	0.61 0.71											
Huron, S. Dak.	6-7			0.54														*			
Indianapolis, Ind.	29	6.17 p. m.	9.53 p. m.	1.22	6.33 p. m.	7.10 p. m.	0.06	0.34	0.52	0.69	0.77	0.84	0.91	1.00	1.04	1.05					
Jacksonville, Fla.	24	5.20 p. m.	7.05 p. m.	0.89	5.25 p. m.	5.45 p. m.	T.	0.29	0.48	0.67	0.80	0.81									
Jupiter, Fla.	27	2.25 p. m.	7.00 p. m.	0.97	2.50 p. m.	3.20 p. m.	0.01	0.13	0.35	0.52	0.65	0.80	0.87								
Kalispell, Mont	12-13			2.64														0.35			
Kansas City, Mo.	15-16			1.92														0.29			
Key West, Fla.	15	12.10 p. m.	3.00 p. m.	1.17	12.35 p. m.	1.15 p. m.	0.12	0.10	0.20	0.27	0.37	0.44	0.52	0.65	0.69	0.73	0.80	0.91			
Knoxville, Tenn.	25	3.30 p. m.	4.35 p. m.	0.92	3.34 p. m.	4.25 p. m.	T.	0.08	0.26	0.40	0.50	0.60	0.66	0.73	0.78	0.82	0.90	0.92			
Lexington, Ky.	30-31			0.60														0.46			
Lincoln, Nebr.	26	1.25 a. m.	4.25 a. m.	1.31	2.55 a. m.	3.35 a. m.	0.37	0.07	0.22	0.42	0.53	0.62	0.69	0.76	0.80	0.82					
Little Rock, Ark.	8	4.04 p. m.	6.50 p. m.	2.43	4.10 p. m.	4.55 p. m.	0.01	0.08	0.37	0.77	0.99	1.15	1.44	1.83	2.03	2.16	2.19	2.22			
Do	29	3.10 p. m.	5.35 p. m.	1.10	4.57 p. m.	5.30 p. m.	0.04	0.49	0.77	0.85	0.90	0.93									
Los Angeles, Cal.	4-5			1.44														0.29			
Louisville, Ky.	30-31	4.57 p. m.	6.10 a. m.	1.45	5.07 p. m.	5.30 p. m.	T.	0.15	0.53	0.65	0.69	0.75	0.77								
Macon, Ga.	23	1.40 p. m.	2.36 p. m.	1.09	1.55 p. m.	2.17 p. m.	0.01	0.29	0.64	0.88	0.93	1.08									
Memphis, Tenn.	31	6.10 p. m.	8.45 p. m.	0.70	6.15 p. m.	6.35 p. m.	T.	0.05	0.24	0.45	0.57	0.61	0.63								
Meridian, Miss.	31			0.45														0.39			
Milwaukee, Wis.	27			0.61								0.61									
Montgomery, Ala.	23			1.29														0.59			
Nantucket, Mass.	19			0.44														0.15			
Nashville, Tenn.	29			0.57														0.37			
New Orleans, La.	31			1.76														0.56			
New York, N. Y.	19	3.00 a. m.	8.25 p. m.	1.97	8.35 a. m.	9.50 a. m.	0.36	0.05	0.11	0.15	0.16	0.22	0.33	0.50	0.65	0.80	0.90	0.97	1.08		
Norfolk, Va.	24			1.27														0.45			
Northfield, Vt.	18-19			0.50														0.05			
Oklahoma, Okla.	6	1.30 p. m.	2.55 p. m.	1.46	1.35 p. m.	2.50 p. m.	T.	0.06	0.10	0.14	0.31	0.62	0.81	0.82	0.91	1.05	1.06	1.13	1.46		
Omaha, Nebr.	14	2.25 p. m.	4.20 p. m.	0.82	3.50 p. m.	4.05 p. m.	0.21	0.35	0.55	0.60											
Parkersburg, W. Va.	8-9			1.15														0.61			
Philadelphia, Pa.	18-19			2.83														0.47			
Pittsburg, Pa.	8-9			0.41														0.26			
Pocatello, Idaho	12-13			0.39														0.09			
Portland, Me.	3			1.52														0.36			
Portland, Oreg.	4			0.82														0.59			
Pueblo, Colo.	20			0.44														0.23			
Raleigh, N. C.	18			0.70														0.47			
Richmond, Va.	18			0.63														0.48			
Rochester, N. Y.	15			0.48														0.30			
St. Louis, Mo.	5-6	11.30 p. m.	4.40 a. m.	2.08	12.05 a. m.	1.00 a. m.	0.14	0.16	0.29	0.30	0.33	0.36	0.42	0.66	0.96	1.11	1.21	1.30			
St. Paul, Minn.	13			0.16							0.15										
Salt Lake City, Utah	6			0.29														0.29			
San Diego, Cal.	4-5			1.85														0.25			
Sandusky	27	5.03 p. m.	6.02 p. m.	0.63	5.05 p. m.	5.20 p. m.	0.02	0.15	0.29	0.49	0.52	0.53									
San Francisco, Cal.	10			0.22														0.16			
Savannah, Ga.	18	3.39 p. m.	6.50 p. m.	0.98	3.50 p. m.	4.10 p. m.	0.03	0.07	0.17	0.45	0.52	0.56	0.59	0.62	0.70	0.74	0.77	0.79			
Do	23	3.51 p. m.	6.40 p. m.	0.87	4.15 p. m.	5.00 p. m.	T.	0.11	0.27	0.29	0.36	0.38	0.40	0.53	0.68	0.78	0.79	0.81			
Seattle, Wash.	25			1.14														0.13			
Spokane, Wash.	16			0.97														*			
Tampa, Fla.	1	10.20 a. m.	1.10 p. m.	0.92	10.20 a. m.	10.35 a. m.	0.00	0.25	0.57	0.65	0.66										
Toledo, Ohio	28			0.70														0.58			
Topeka, Kans.	7			0.40														0.40			
Vicksburg, Miss.	17	7.40 a. m.	9.37 a. m.	0.17	8.10 a. m.	8.40 a. m.	0.01	0.04	0.21	0.34	0.47	0.64	0.69	0.70							
Washington, D. C.	19	12.15 a. m.	3.13 p. m.	3.15	12.38 a. m. 2.20 a. m. 4.10 a. m.	12.52 a. m. 3.10 a. m. 4.40 a. m.	T. 0.72 2.23	0.25 0.08 0.02	0.44 0.21 0.04	0.51 0.44 0.11	0.57 0.84 0.21	0.60 0.93 0.37	0.60 1.02 0.60	0.64 1.15 0.61	1.29 0.62	1.38	1.45				
Wilmington, N. C.	24	5.45 p. m.	8.04 p. m.	1.86	5.45 p. m.	6.45 p. m.	0.00	0.07	0.30	0.42	0.56	0.58	0.65	0.66	0.74	0.87	0.93	1.35	1.40	1.51	1.73
Yankton, S. Dak.	29			0.49														0.49			
Basseterre, St. Kitts.	23-24			0.85																	
Bridgetown, Barbados	17-18			2.93														0.43			
Cienfuegos, Cuba	28	4.55 p. m.	6.10 p. m.	1.20	5.00 p. m.	5.40 p. m.	T.	0.29	0.56	0.76	0.91	1.00	1.04	1.11	1.17						
Havana, Cuba	2	12.27 p. m.	6.25 p. m.	1.35	1.35 p. m.	2.10 p. m.	0.02	0.05	0.14	0.35	0.52	0.67	0.79	0.87	0.91						
Do	14	3.52 p. m.	D. N.	2.62	5.35 p. m. 6.25 p. m.	6.25 p. m. 7.15 p. m.	0.10	0.09 1.21	0.21 1.30	0.46 1.43	0.67 1.60	0.82 1.66	0.89 1.74	0.93 1.92	0.96 2.11	1.00 2 31	1.08 2 40	2.46			
Kingston, Jamaica	29	3.02 p. m.	3.53 p. m.	0.60	3.03 p. m.	3.20 p. m.	T.	0.16	0.31	0.41	0.44	0.45	0.51	0.56	0.59	0 60					
Port of Spain, Trin.	31			0.63														0.57			

TABLE IX.—*Accumulated amounts of precipitation for each 5 minutes, etc.*—Continued.

Stations.	Date.	Total duration. From—	Total duration. To—	Total am't of precipitation.	Excessive rate. Began—	Excessive rate. Ended—	Amount before excessive began.	Depths of precipitation (in inches) during periods of time as indicated. 5 min.	10 min.	15 min.	20 min.	25 min.	30 min.	35 min.	40 min.	45 min.	50 min.	60 min.	80 min.	100 min.	120 min.
	1	2 3	4 5	6	7																
Puerto Pr'ncipe, Cuba	4	8.55 p.m.	4.55 p.m.	1.05	4.10 p.m.	4.45 p.m.	0.08	0.20	0.59	0.72	0.74	0.79	0.88	0.95	0.97	.....	.....	.....	.....	.....	.....
Do	14	D. N.	12.05 p.m.	2.01	11.05 a.m.	11.50 a.m.	0.71	0.08	0.24	0.42	0.60	0.90	1.07	1.15	1.25	1.30	.....	.....	.....	.....	.....
Do	15	6.43 p.m.	D. N.	2.33	9.28 p.m.	11.30 p.m.	0.53	0.23	0.52	0.69	0.80	0.85	0.90	0.92	1.01	1.10	1.18	1.25	1.49	1.84	2.09
Roseau, Dominica	17-18	8.14 p.m.	7.07 a.m.	3.08	8.18 p.m.	9.15 p.m.	T.	0.11	0.17	0.30	0.41	0.48	0.74	1.10	1.38	1.54	1.68	1.77	.....	.....	.....
San Juan, Puerto Rico.	31	.....	.....	1.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.48	.....	.....	.....
Santiago de Cuba	2	D. N.	D. N.	2.31	4.05 a.m.	4.55 a.m.	0.46	0.05	0.23	0.43	0.51	0.81	0.98	1.32	1.58	1.72	1.76	1.80	.....	.....	.....
Santo Domingo, S. D..	18	12.02 p.m.	11.35 p.m.	1.16	2.21 p.m.	3.16 p.m.	0.15	0.07	0.21	0.36	0.44	0.57	0.67	0.84	0.94	1.03	1.10	1.17	1.35	1.55	1.74
Do	30	3 40 p.m.	8.40 p.m.	1.08	3.45 p.m.	4.05 p.m.	T.	0.11	0.36	0.59	0.75	0.80	0.83	0.87	.. ..	.....	.....	.....	.....	.....	.....
Williamstad, Curaçao .	26	.....	.....	0.02	.....	.. ..	.....	.....	.....	....	.....	.....	.....	.....	.....	.....	.....	0.02	.....	.....	.....

*Self-register not working. †Estimated.

TABLE X.—*Data furnished by the Canadian Meteorological Service, May, 1900.*

Stations.	Pressure.			Temperature.				Precipitation.		
	Mean not reduced.	Mean reduced.	Departure from normal.	Mean.	Departure from normal.	Mean maximum.	Mean minimum.	Total.	Departure from normal.	Depth of snow.
	Ins.	*Ins.*	*Ins.*	°	°	°	°	*Ins.*	*Ins.*	*Ins.*
St. Johns, N. F.	29.69	29.84	−.12	41.9	− 1.0	50.1	33.7	2.19	−1.51	T.
Sydney, C. B. I.	29.88	29.92	−.05	44.4	− 0.8	53.6	35.3	3.28	−1.05	0.0
Halifax, N. S.	29.83	29.94	−.03	47.3	− 1.1	57.1	37.6	4.25	−0.47	0.2
Grand Manan, N. B.	29.88	29.93	−.05	47.8	− 0.1	54.8	40.8	6.87	+3.34	0.0
Yarmouth, N. S.	29.87	29.95	−.03	46.6	− 1.0	54 0	39.1	4.73	+0.70	0.1
Charlottet'n, P. E. I.	29.87	29.91	−.05	47.2	+ 0.3	56.0	38.5	2.61	−0.54	0.0
Chatham, N. B.	29.87	29.89	−.06	47.0	− 1.5	57.9	36.0	3.01	−0.89	0.6
Father Point, Que.	29.87	29.90	−.05	41.0	− 3.0	49.7	32.4	2.45	+0.02	0.0
Quebec, Que.	29.50	29.92	−.03	47.8	− 2.1	57.7	38.0	1.42	−1.70	0.2
Montreal, Que.	29.72	29.93	.00	52.2	− 2.5	61.9	42.4	3.11	+0.08	T.
Bissett, Ont.	29.35	29.96	+.02	50.6	− 1.3	66.6	34.5	2.17	−0.43	0.0
Ottawa, Ont.	29.58	29.90	−.04	53.4	− 1.5	65.1	41.6	3.00	.....	0.0
Kingston, Ont.	29.63	29.95	−.01	51.9	− 1.0	61.3	42.6	2.35	−0.40	T.
Toronto, Ont.	29.58	29.96	−.02	55.6	+ 2.4	67.1	44.1	1.01	−1.64	0.0
White River, Ont.	28.64	29.99	+.01	47.9	+ 2.2	64.7	31.1	1.88	+0.37	0.0
Port Stanley, Ont.	29.32	29.96	−.01	54.6	+ 1.5	64.1	45.1	1.87	−0.97	T.
Saugeen, Ont.	29.25	29.97	+.01	52.3	+ 1.6	62.1	42.4	3.44	+0.87	T.
Parry Sound, Ont.	29.25	29.95	−.01	52.2	+ 1.1	63.4	41.1	4.28	+0.96	0.0
Port Arthur, Ont.	29.25	29.95	+.02	50.8	+ 4.9	63.2	38.3	0.36	−1.82	0.0
Winnipeg, Man.	29.12	29.93	−.01	57.3	+ 5.7	74.2	40.4	0.11	−2.71	0.0
Minnedosa, Man.	28.14	29.92	+.02	56.4	+ 8.0	71.4	41.5	0.16	−1.48	0.0
Qu'Appelle, Assin.	27.62	29.83	−.06	57.7	+ 7.9	73.2	42.2	0.71	−0.81	0.1
Medicine Hat, Assin.	27.58	29.83	−.04	58.3	+ 4.2	72 4	44.3	1.62	+0.46	0.0
Swift Current, Assin.	27.33	29.86	−.04	57.5	+ 6.8	71.4	43.6	2.49	+1.00	0.0
Calgary, Alberta.	26.33	29.82	−.07	51.8	+ 2.8	66.1	37.4	1.32	−0.17	0.0
Banff, Alberta.	25.30	29.91	.....	47.8	+ 0.8	61.3	34.3	0.87	−0.55	0.0
Edmonton, Alberta.	27.51	29.77	−.12	55.7	+ 4.9	68.7	42.6	2.71	+1.11	0.0
Prince Albert, Sask.	28.30	29.82	.....	54.4	+ 6.8	68.5	40.3	1.94	+0.73	0.0
Battleford, Sask.	28.14	29.85	.....	56.8	+ 5.8	69.0	44.6	2.80	+1.68	0.0
Kamloops, B. C.	28.69	29.95	.....	57.2	.....	68.0	46.4	1.79	+0.84	0.0
Victoria, B. C.	29.90	30.00	.....	53.6	+ 1.6	59.6	47.6	1.04	.....	0.0
Barkerville, N. W. T.	25.57	29.85	.....	46.3	+ 0.8	60.1	32.5	2.84	+0.17	0.0
Hamilton, Bermuda.	29.95	30.11	+.08	69.0	− 0.4	74.2	63.8	7.47	+2.70	0.0

TABLE XI.—*Heights of rivers referred to zeros of gages, May, 1900.*

Stations.	Distance to mouth of river.	Danger line on gage.	Highest water.		Lowest water.		Mean stage.	Monthly range.
			Height.	Date.	Height.	Date.		
Mississippi River.	*Miles.*	*Feet.*	*Feet.*		*Feet.*		*Feet.*	*Feet.*
St. Paul, Minn	1,954	14	3.8	3,4,5	2.5	21	3.1	1.3
Reeds Landing, Minn	1,884	12	4.1	1	1.8	31	2.6	2.3
La Crosse, Wis	1,819	12	6.6	1	3.2	30,31	4.4	3.4
Prairie du Chien	1,750	18	10.4	1	3.1	31	5.4	7.3
Dubuque, Iowa	1,690	15	10.9	1	3.4	31	5.7	7.5
Leclaire, Iowa	1,609	10	6.7	3,4	2.3	31	4.1	4.4
Davenport, Iowa	1,593	15	8.4	3,4	3.2	31	5.1	5.2
Muscatine, Iowa	1,562	16	10.0	4	4.4	31	6.4	5.6
Galland, Iowa	1,472	8	4.7	7	2.0	27–30	3.1	2.7
Keokuk, Iowa	1,463	15	8.0	7	3.2	28,29	5.3	4.8
Hannibal, Mo	1,402	13	9.5	9	4.3	30,31	6.8	5.2
Grafton, Ill	1,306	25	12.3	8,9	6.8	30	9.2	5.5
St. Louis, Mo	1,264	30	16.5	14	12.8	28,29	14.8	3.7
Chester, Ill	1,189	35	12.8	9,14	9.6	29	11.4	3.2
Memphis, Tenn	843	33	22.1	1	8.5	28,29	12.6	13.6
Helena, Ark	767	42	31.4	1	15.4	29	21.1	16.0
Arkansas City, Ark	635	42	33.8	2,3	18.8	31	25.3	15.0
Greenville, Miss	595	42	28.3	2,3	15.2	31	21.0	13.1
Vicksburg, Miss	474	45	34.0	4	17.7	30	26.3	16.3
New Orleans, La	108	16	13.1	8,9	7.4	31	11.1	5.7
Missouri River.								
Bismarck, N. Dak	1,309	14	7.7	21	4.7	8–10	6.0	3.0
Pierre, S. Dak	1,114	14	7.8	23	3.8	1	6.4	4.0
Sioux City, Iowa	784	19	11.2	23	7.6	3,4	9.4	3.6
Omaha, Nebr	669	18	10.6	27	7.9	5,6	9.2	2.7
Plattsmouth, Nebr	641	17	8.2	24	5.7	4,5	7.0	2.5
St. Joseph, Mo	481	10	6.9	9	4.2	6	5.4	2.7
Kansas City, Mo	388	21	15.4	26	11.0	7	13.1	4.4
Boonville, Mo	199	20	12.6	28	9.0	9	11.0	3.6
Hermann, Mo	103	24	12.1	29	9.3	9	10.9	2.8
Des Moines River.								
Des Moines, Iowa	150	19	3.6	20	3.3	5,6,22–24	.....	0.3
Illinois River.								
Peoria, Ill	135	14	11.5	1	8.6	27,28	9.6	2.9
Beardstown, Ill	70	12	11.5	1,2	8.0	31	9.6	3.5
Osage River.								
Bagnell, Mo	70	28	7.1	1	2.0	29	3.7	4.9
Gasconade River.								
Arlington, Mo	58	16	3.9	10	0.0	27–31	1.0	3.9
Youghiogheny River.								
Confluence, Pa	59	10	3.1	20	0.8	7,8	1.3	2.3
West Newton, Pa	15	23	2.1	21	0.7	{16,19, 30,31}	1.0	1.4
Allegheny River.								
Warren, Pa	177	14	1.7	1	0.5	30,31	1.0	1.2
Oil City, Pa	123	13	2.4	13	1.0	29,30	1.6	1.4
Parker, Pa	73	20	2.6	1	0.8	28	1.6	1.8
Monongahela River.								
Weston, W. Va	161	18	1.2	20	−0.8	6–8	−0.2	2.0
Fairmont, W. Va	119	25	1.4	22,23	0.5	8	0.9	0.9
Greensboro, Pa	81	18	8.0	22	6.9	{7,8,9, 18,19}	7.2	1.1
Lock No. 4, Pa	40	28	9.4	23	6.2	8	8.0	3.2
Conemaugh River.								
Johnstown, Pa	64	7	1.9	13	1.4	29,30	1.6	0.5
Red Bank Creek.								
Brookville, Pa	35	8	2.5	13	1.4	27–31	1.9	1.1
Beaver River.								
Ellwood Junction, Pa	10	14	3.1	1	2.0	28–31	2.5	1.1
Great Kanawha River.								
Charleston, W. Va	61	30	7.9	27	4.6	2	6.7	3.3
New River.								
Hinton, W. Va	95	14	3.3	20	1.8	18,19	2.3	1.5
Cheat River.								
Rowlesburg, W. Va	36	14	3.8	11,21	2.2	{25,26, 28–31}	2.9	1.6
Ohio River.								
Pittsburg, Pa	966	22	6.8	21	1.5	10	4.6	5.3
Davis Island Dam, Pa	960	25	5.3	1	3.4	11,29,31	4.2	1.9
Wheeling, W. Va	875	36	6.6	1	3.6	28,29	4.8	3.0
Parkersburg, W. Va	785	36	7.0	1	4.7	31	6.0	2.3
Point Pleasant, W. Va	708	39	8.0	1,21	4.3	30,31	5.5	3.7
Huntington, W. Va	660	50	12.3	21	7.7	16	9.1	4.6
Catlettsburg, Ky	651	50.	12.1	21	5.7	31	7.8	6.4
Portsmouth, Ohio	612	50	12.8	1,22	7.6	18	9.3	5.2
Cincinnati, Ohio	499	50	16.0	1	9.1	30	11.2	6.9
Madison, Ind	413	46	14.7	1	8.4	21	10.5	6.3
Louisville, Ky	367	28	8.0	1	5.1	21,22	6.2	2.9
Evansville, Ind	184	35	14.3	1	6.5	24	8.9	7.8
Paducah, Ky	47	40	19.0	1	6.1	25	9.7	12.9
Cairo, Ill	1,073	45	28.1	1	16.1	26	19.6	12.0
Muskingum River.								
Zanesville, Ohio	70	20	7.5	1	6.1	27–29	6.6	1.4
Scioto River.								
Columbus, Ohio	110	17	2.6	1	1.8	24	2.0	0.8
Miami River.								
Dayton, Ohio	60	18	1.6	11	1.1	{18,25, 29,30}	1.3	0.5
Wabash River.								
Mount Carmel, Ill	50	15	4.2	24	2.7	18–23	3.2	1.5
Licking River.								
Falmouth, Ky	30	25	3.5	31	1.0	{20–22, 28,29}	1.5	2.5
Clinch River.								
Speers Ferry, Va	156	20	0.8	21,25	0.2	16,17	0.4	0.6
Clinton, Tenn	46	25	5.0	1	2.1	24	3.4	2.9
Tennessee River.								
Knoxville, Tenn	614	29	2.7	1	1.2	31	1.8	1.5
Kingston, Tenn	534	25	3.3	1	1.6	23,24,31	2.3	1.7

Stations.	Distance to mouth of river.	Danger line on gage.	Highest water.		Lowest water.		Mean stage.	Monthly range.
			Height.	Date.	Height.	Date.		
Tennessee River—Con'd.	*Miles.*	*Feet.*	*Feet.*		*Feet.*		*Feet.*	*Feet.*
Chattanooga, Tenn	430	33	6.4	1	3.0	23,24	4.0	3.4
Bridgeport, Ala	390	24	4.9	1	1.5	24,25	2.4	3.4
Florence, Ala	230	16	6.7	1	1.9	29	3.2	4.8
Riverton, Ala	190	25	9.3	1	1.9	28,29,30	3.9	7.4
Johnsonville, Tenn	94	21	13.3	1	3.4	24	5.8	7.9
Cumberland River.								
Burnside, Ky	434	30	4.5	1	1.7	23,29–31	2.7	2.8
Carthage, Tenn	257	40	6.5	1	1.6	30,31	3.0	4.9
Nashville, Tenn	175	40	10.0	1	2.5	28–31	4.6	7.5
Arkansas River.								
Wichita, Kans	726	10	7.4	28	4.5	3	5.8	2.9
Webbers Falls, Ind. T	413	23	11.6	22	4.5	18	7.0	7.1
Fort Smith, Ark	351	22	12.8	23	6.0	18	8.5	6.8
Dardanelle, Ark	256	21	11.6	24	5.4	21	7.8	6.2
Little Rock, Ark	176	23	12.0	12	6.4	21,22	9.0	5.6
White River.								
Newport, Ark	150	26	14.6	1	4.1	30,31	8.8	10.5
Yazoo River.								
Yazoo City, Miss	80	25	22.9	1–4	7.1	31	18.2	15.8
Red River.								
Arthur City, Tex	688	27	18.0	3	7.8	17	11.2	10.2
Fulton, Ark	565	28	22.3	5	9.8	20	14.5	12.5
Shreveport, La	449	29	15.2	8	8.2	23	11.5	7.0
Alexandria, La	139	33	17.7	9,10	8.8	26	13.6	8.9
Ouachita River.								
Camden, Ark	340	39	25.0	1	4.7	30	10.2	20.3
Monroe, La	100	40	31.0	2,3	9.8	31	25.1	21.2
Atchafalaya River.								
Melville, La	100	31	30.5	1	22.0	31	27.5	8.5
Susquehanna River.								
Wilkesbarre, Pa	178	14	2.4	23	−1.0	31	0.5	3.4
Harrisburg, Pa	70	17	4.3	1	1.9	31	2.6	2.4
W. Br. of Susquehanna.								
Williamsport, Pa	35	20	4.0	30	1.7	25	2.3	2.3
Juniata River.								
Huntingdon, Pa	80	24	3.6	{1,2,19, 20,21}	3.0	{8–18, 25–31}	3.2	0.6
Potomac River.								
Harpers Ferry, W. Va	170	16	2.8	21	1.6	6–9	2.1	1.2
James River.								
Lynchburg, Va	257	18	2.5	27	0.6	16–17	1.3	1.9
Richmond, Va	110	12	0.6	28	−1.2	{7,9–18, 20,23}	−0.8	1.8
Roanoke River.								
Weldon, N. C.	90	40	14.1	27	8.4	16–19	9.3	5.7
Cape Fear River.								
Fayetteville, N. C.	100	38	18.0	20	3.6	18	6.3	14.4
Lumber River.								
Fairbluff, N. C.	10	6	6.3	1	1.8	17–23	3.1	4.5
Edisto River.								
Edisto, S. C	75	6	5.3	1	3.1	17–19	4.0	2.2
Pedee River.								
Cheraw, S. C	145	27	8.6	20	1.8	16–18	3.2	6.8
Black River.								
Kingstree, S. C	60	12	10.0	1	3.1	31	5.3	6.9
Lynch Creek.								
Effingham, S. C	35	12	10.6	1	3.6	31	5.7	7.0
Santee River.								
St. Stephens, S. C	50	12	14.8	1	4.8	19	7.6	10.0
Congaree River.								
Columbia, S. C	37	15	2.8	26	1.0	23–31	1.6	1.8
Wateree River.								
Camden, S. C	45	24	14.5	19	5.0	31	7.0	9.5
Waccamaw River.								
Conway, S. C	40	7	6.9	4	1.0	25	4.3	5.9
Savannah River.								
Calhoun Falls, S. C	347	.....	4.9	24	2.8	18,31	3.3	2.1
Augusta, Ga	208	32	13.4	25	7.6	31	9.4	5.8
Broad River.								
Carlton, Ga	30	.....	4.7	3	2.6	30,31	3.0	2.1
Flint River.								
Albany, Ga	80	30	11.1	3	1.0	30,31	4.5	10.1
Chattahoochee River.								
Westpoint, Ga	239	20	5.0	24	3.2	17,18	3.8	1.8
Ocmulgee River.								
Macon, Ga	125	20	8.6	3	2.9	31	4.5	5.7
Oconee River.								
Dublin, Ga	60	30	8.3	1	1.9	18,31	4.1	6.4
Coosa River.								
Rome, Ga	225	30	6.2	1	2.3	23	3.1	3.9
Gadsden, Ala	144	18	6.7	2	1.9	16–19	3.1	4.8
Alabama River.								
Montgomery, Ala	265	35	10.2	1	3.8	22,23,31	5.5	6.4
Selma, Ala	212	35	15.4	1	4.8	23	7.6	10.6
Tombigbee River.								
Columbus, Miss	303	33	8.0	1	−1.0	19	1.8	9.0
Demopolis, Ala	155	35	55.6	1	4.4	22	19.1	51.2
Black Warrior River.								
Tuscaloosa, Ala	129	43	21.2	1	3.3	20,23	7.0	17.9
Columbia River.								
Umatilla, Oreg	270	25	20.0	15	12.0	1	16.8	8.0
The Dalles, Oreg	166	40	32.2	19	18.5	1	27.3	13.7
Willamette River.								
Albany, Oreg	99	20	4.3	28	3.0	25	3.8	1.3
Portland, Oreg	10	15	17.8	20	10.1	1,2,3	15.0	7.7
Sacramento River.								
Red Bluff, Cal	241	23	3.8	1	1.4	31	2.5	2.4
Sacramento, Cal	70	29	19.4	20	16.5	31	18.5	2.9

Chart I. Tracks of Centers of High Areas. May, 1900.

Chart I. Tracks of Centers of High Areas. May, 1900.

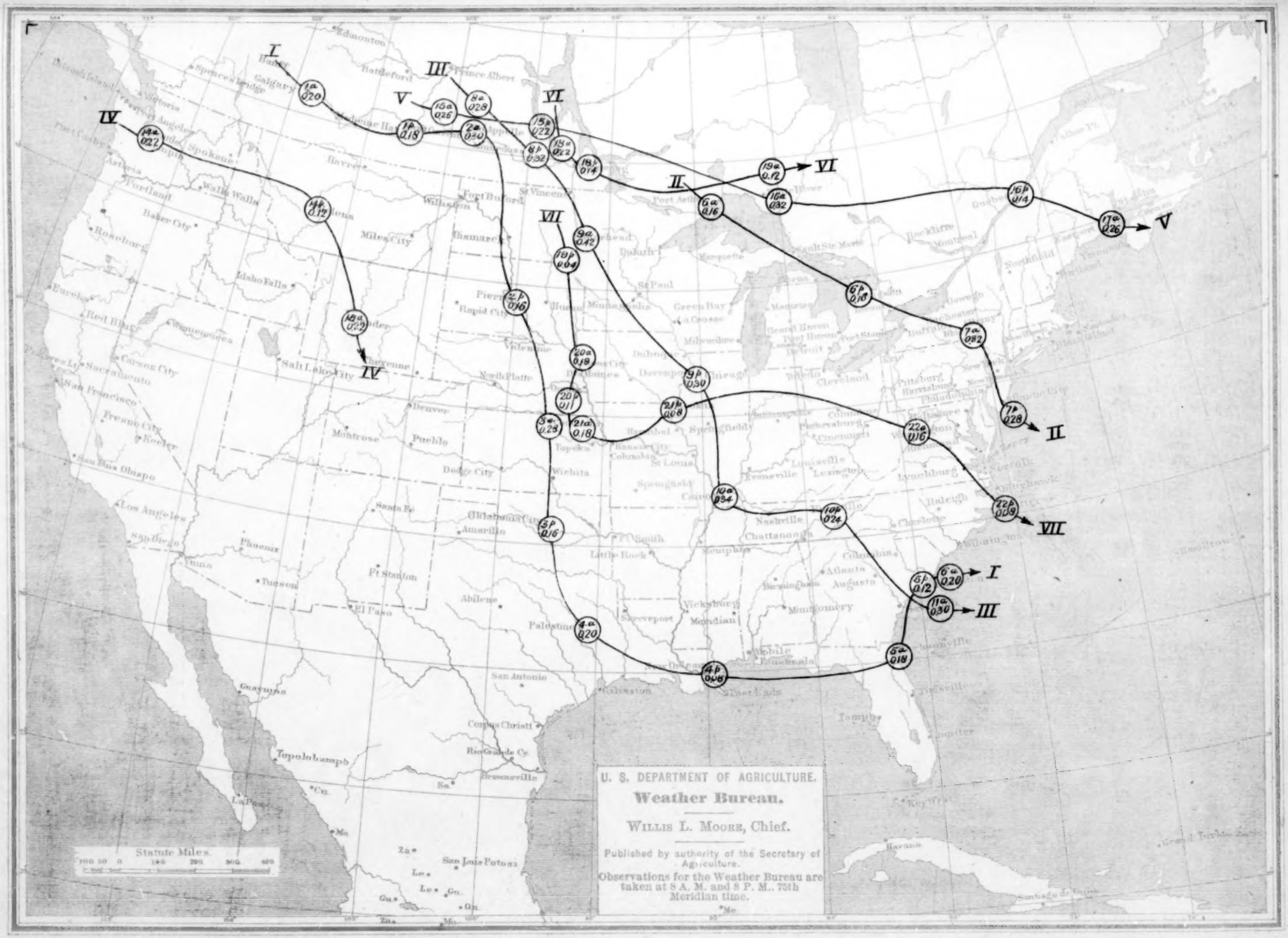


Chart II. Tracks of Centers of Low Areas. May, 1900.

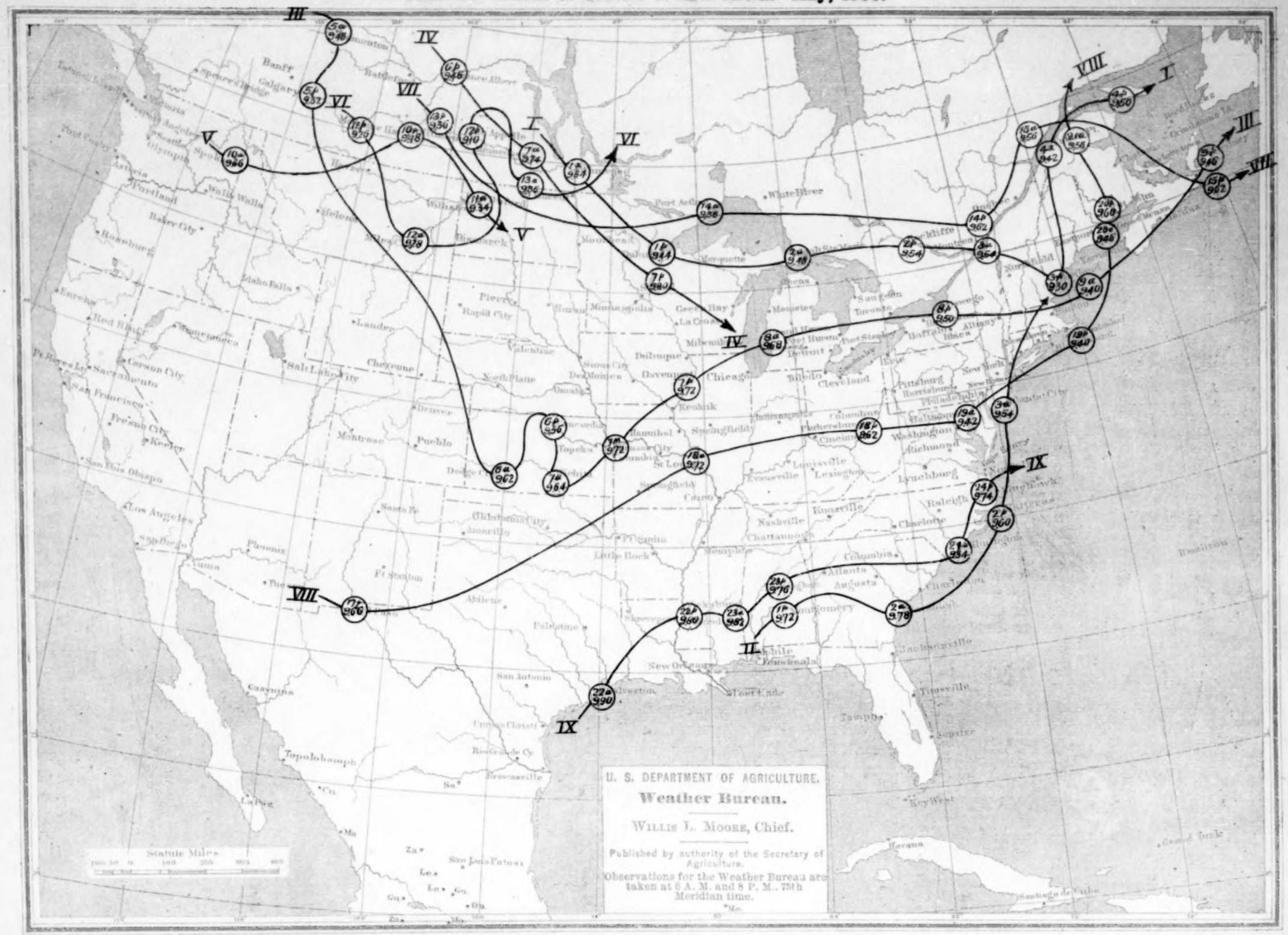


Chart III. Total Precipitation. May, 1900.

Chart III. Total Precipitation. May, 1900.

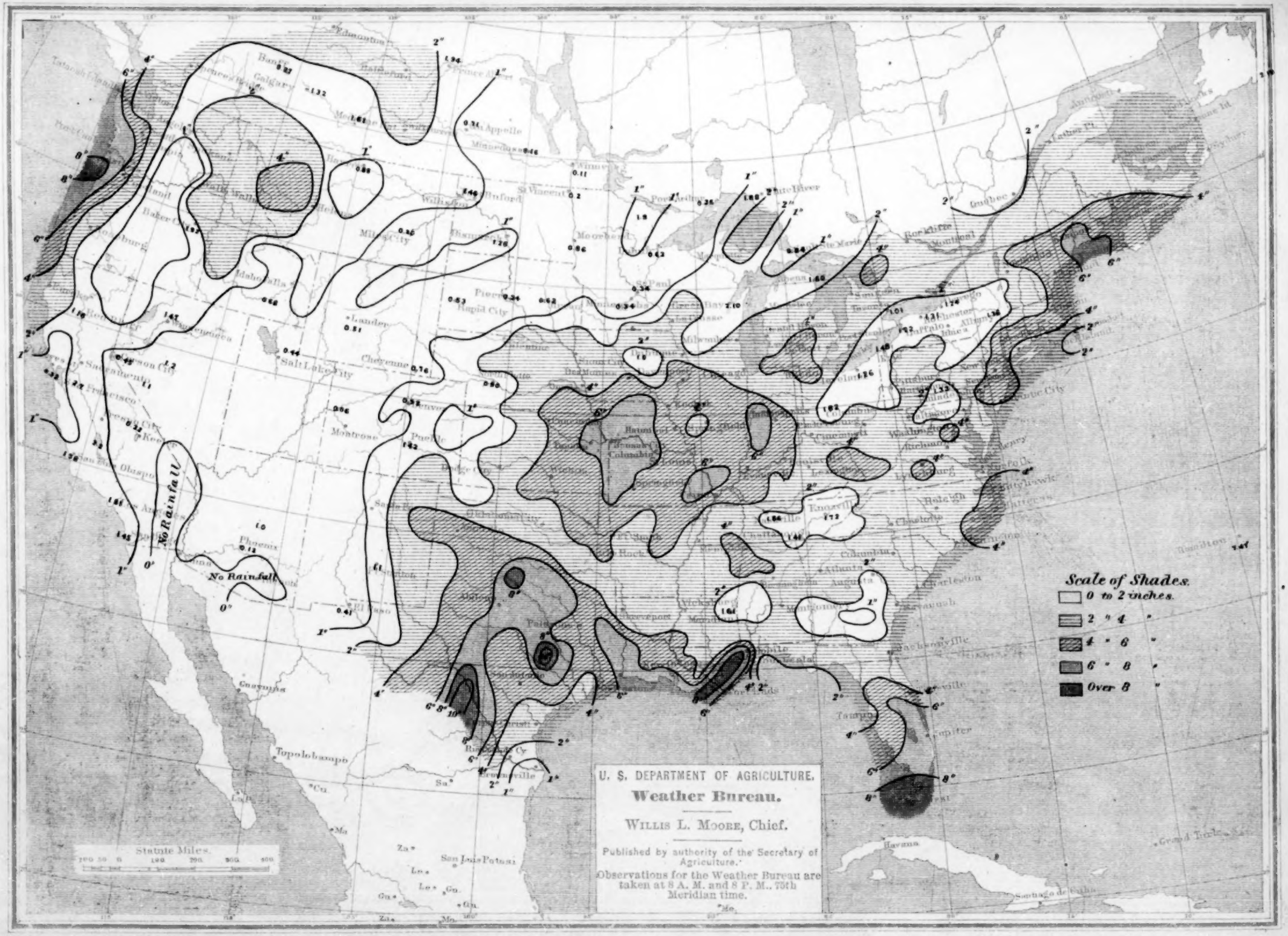
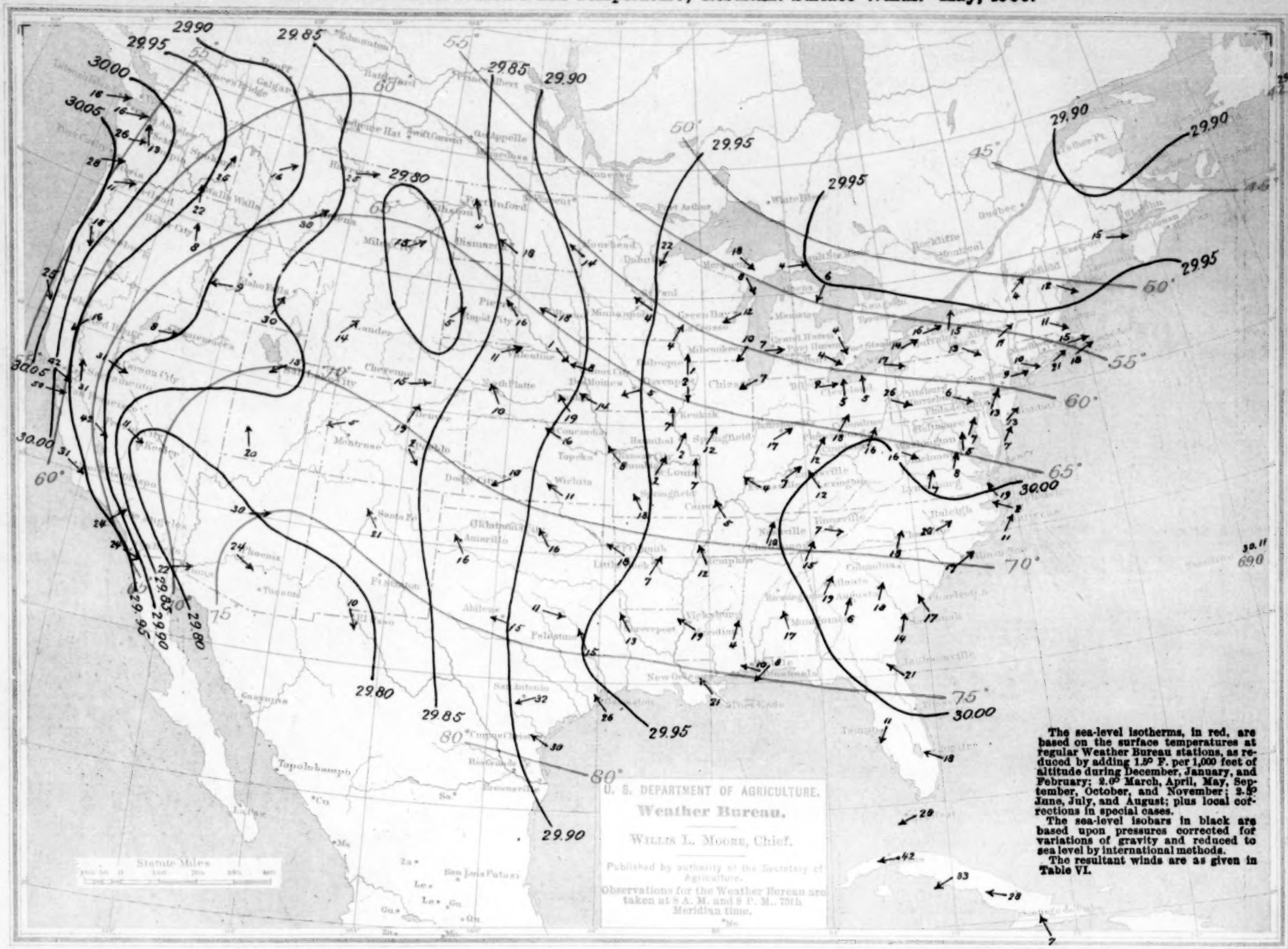

No Rainfall
No Rainfall
Scale of Shades.
0 to 2 inches.
2 " 4 "
4 " 6 "
6 " 8 "
Over 8 "
Statute Miles.
U. S. DEPARTMENT OF AGRICULTURE.
Weather Bureau.
WILLIS L. MOORE, Chief.
Published by authority of the Secretary of Agriculture.
Observations for the Weather Bureau are taken at 8 A. M. and 8 P. M., 75th Meridian time.

Chart IV. Sea-Level Pressure and Temperature; Resultant Surface Winds. May, 1900.



The sea-level isotherms, in red, are based on the surface temperatures at regular Weather Bureau stations, as reduced by adding 1.5° F. per 1,000 feet of altitude during December, January, and February; 2.0° March, April, May, September, October, and November; 2.5° June, July, and August; plus local corrections in special cases.

The sea-level isobars in black are based upon pressures corrected for variations of gravity and reduced to sea level by international methods.

The resultant winds are as given in Table VI.

Chart V. Hydrographs for Seven Principal Rivers of the United States. May, 1900.

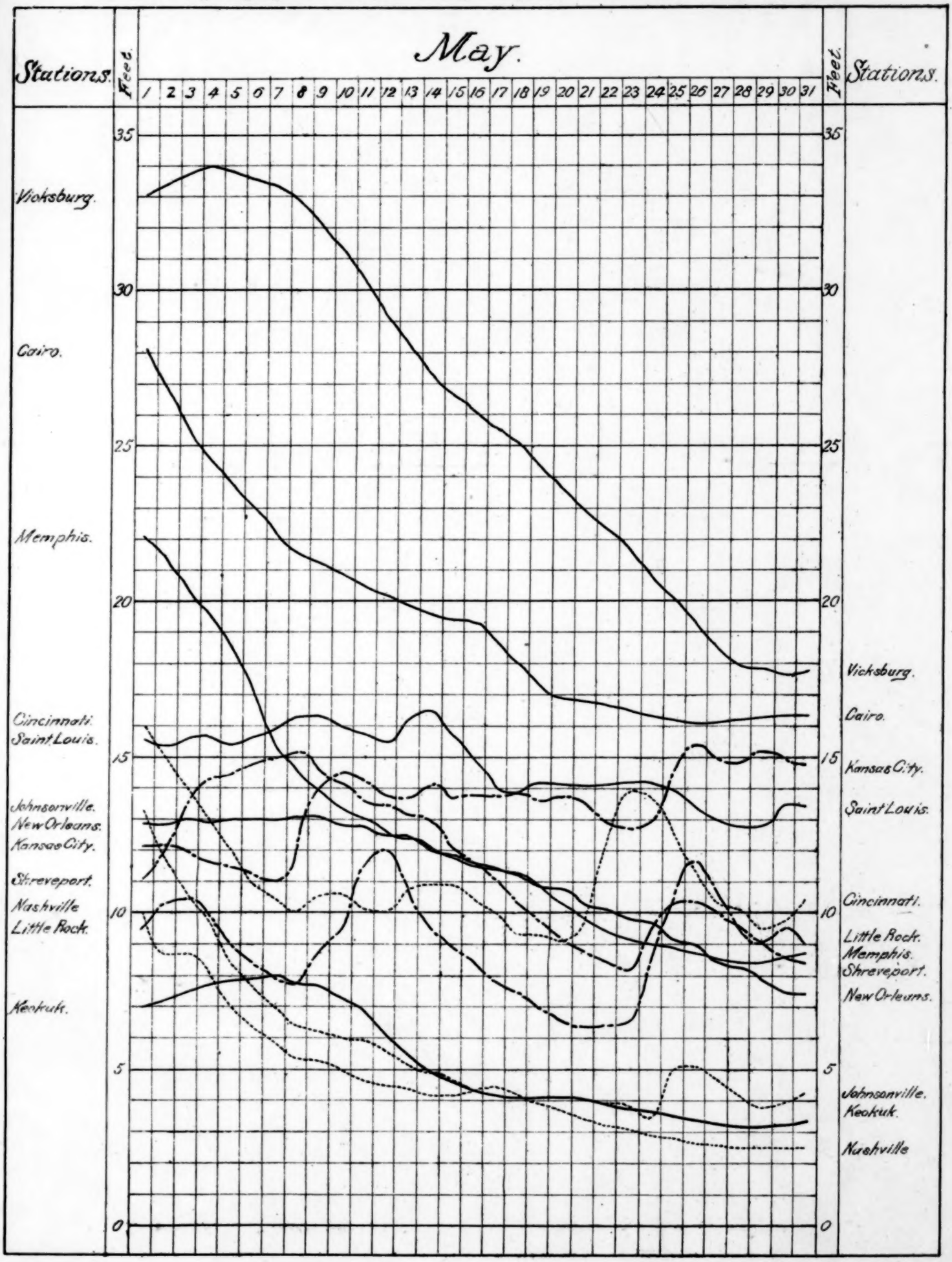


Chart VI. Surface Temperatures; Maximum, Minimum, and Mean. May, 1900.

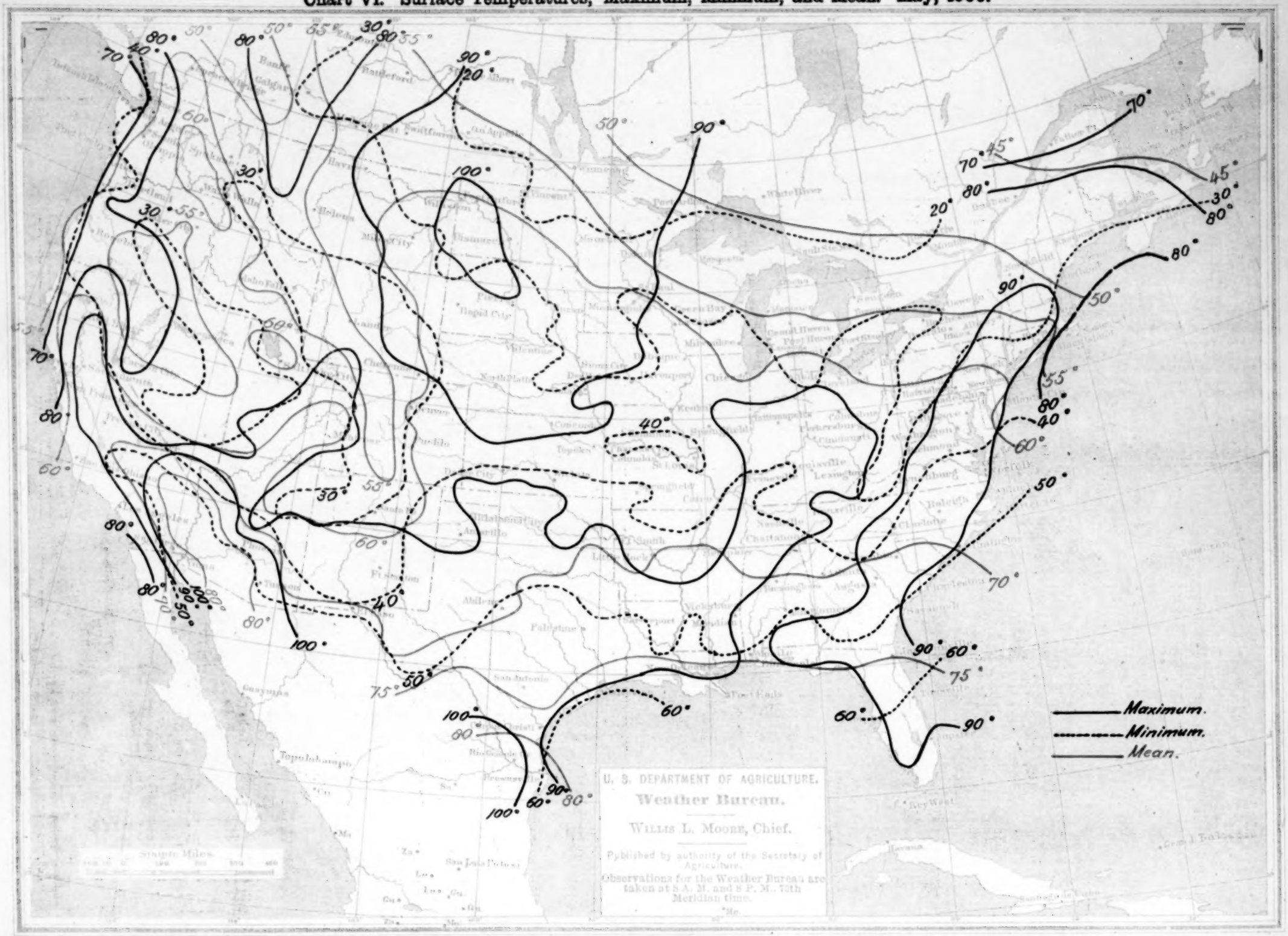

Maximum.
Minimum.
Mean.
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Chart VII. Percentage of Sunshine. May, 1900.

Chart VII. Percentage of Sunshine. May, 1900.

Scale of Shades
Over 70 percent
70 to 60 " "
60 - 50 " "
50 - 40 " "
Under 40 "
Statute Miles
100 50 0 100 200 300 400
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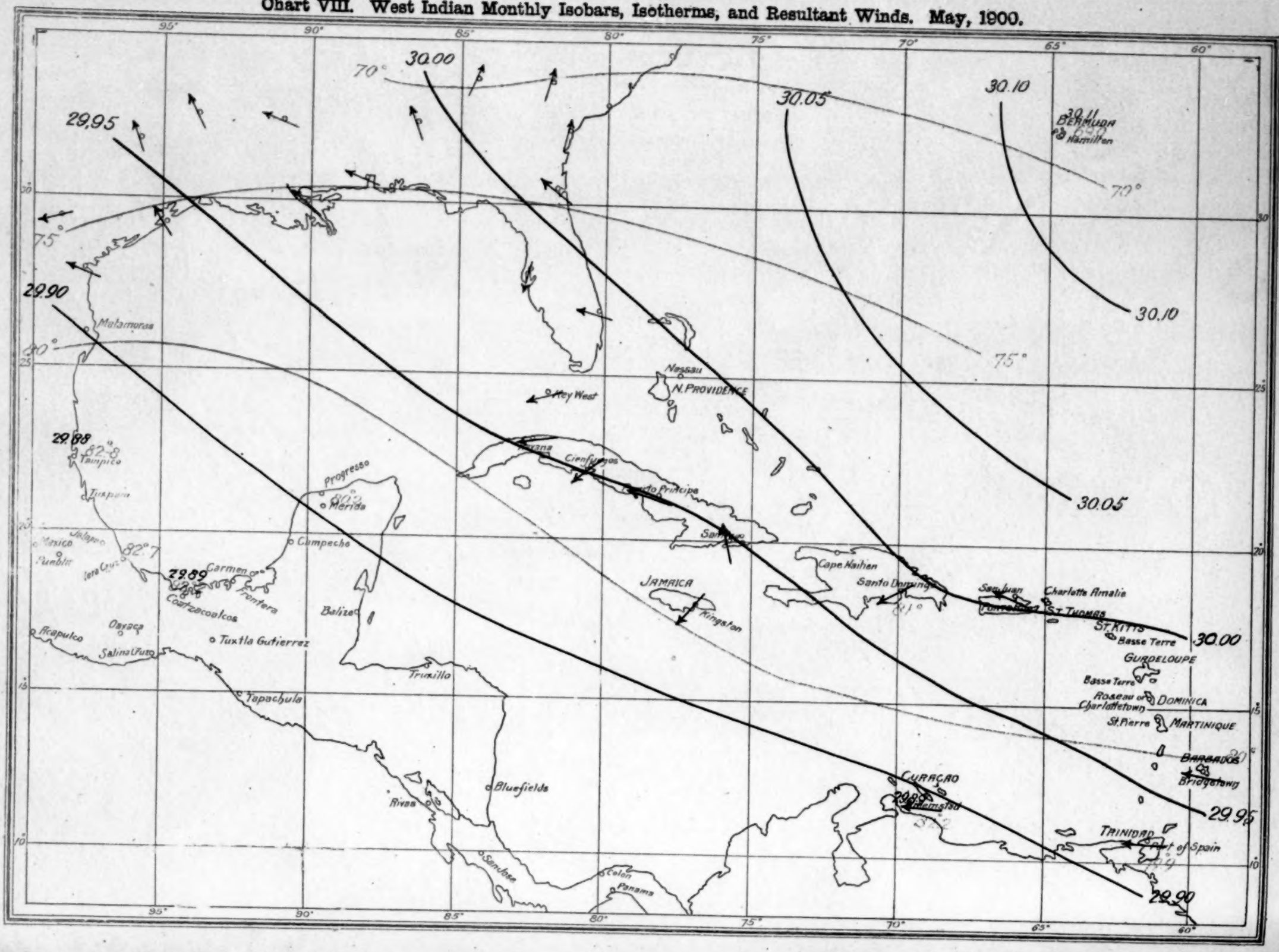
Chart VIII. West Indian Monthly Isobars, Isotherms, and Resultant Winds. May, 1900.